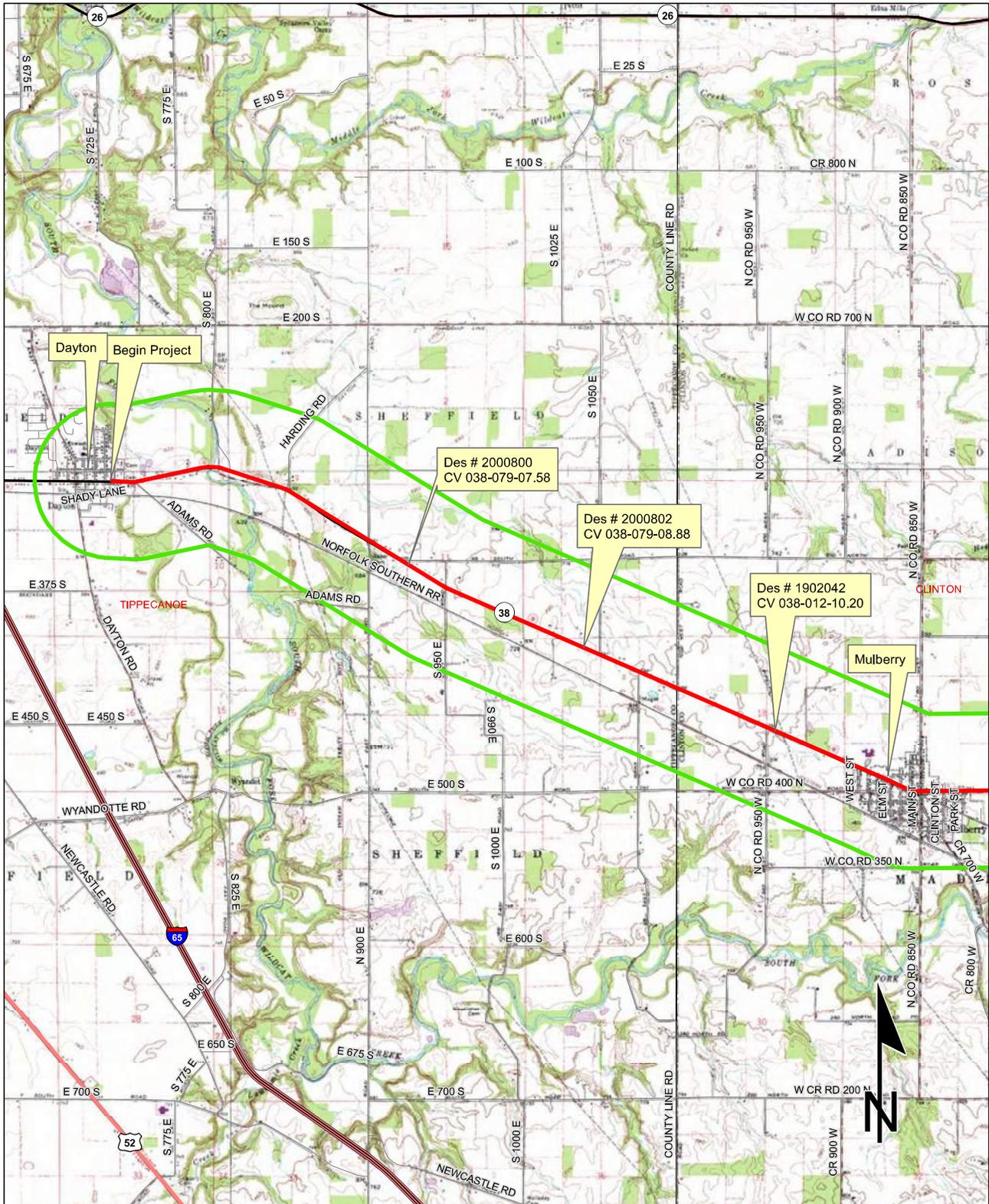


Red Flag Investigation - Site Location
 Des # 1601074
 SR 38, West Segment From Dayton to Mulberry
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana

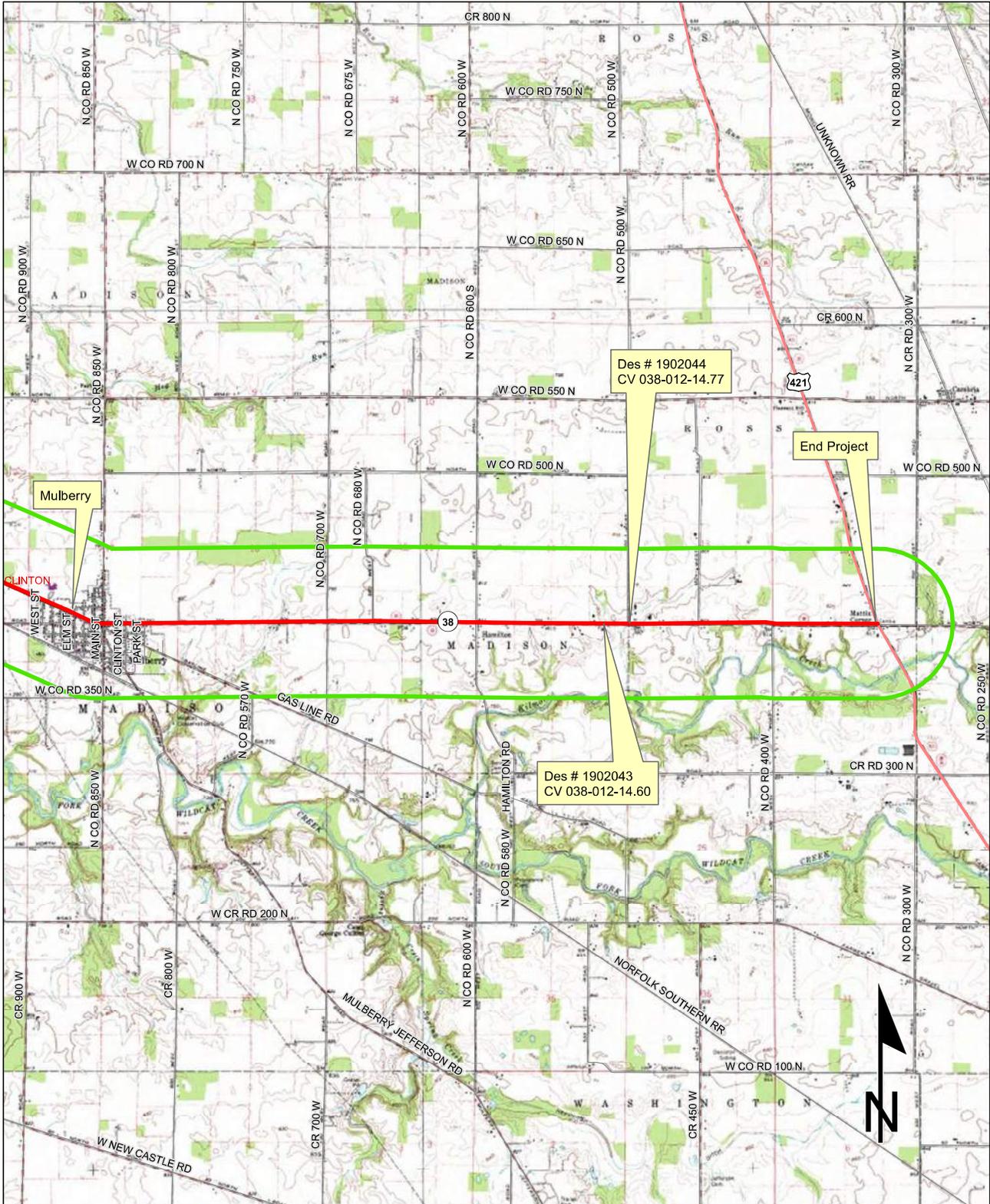


Sources: 0.8 0.4 0 0.8 Miles
Non Orthophotography
Data - Obtained from the State of Indiana Geographical Information Office Library
Orthophotography - Obtained from Indiana Map Framework Data (www.indianamap.org)
Map Projection: UTM Zone 16 N **Map Datum:** NAD83
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FRANKFORT, LAFAYETTE,
 MULBERRY, PYRMONT, AND
 STOCKWELL QUADRANGLE, INDIANA
 7.5 MINUTE SERIES (TOPOGRAPHIC)

E-12
 11

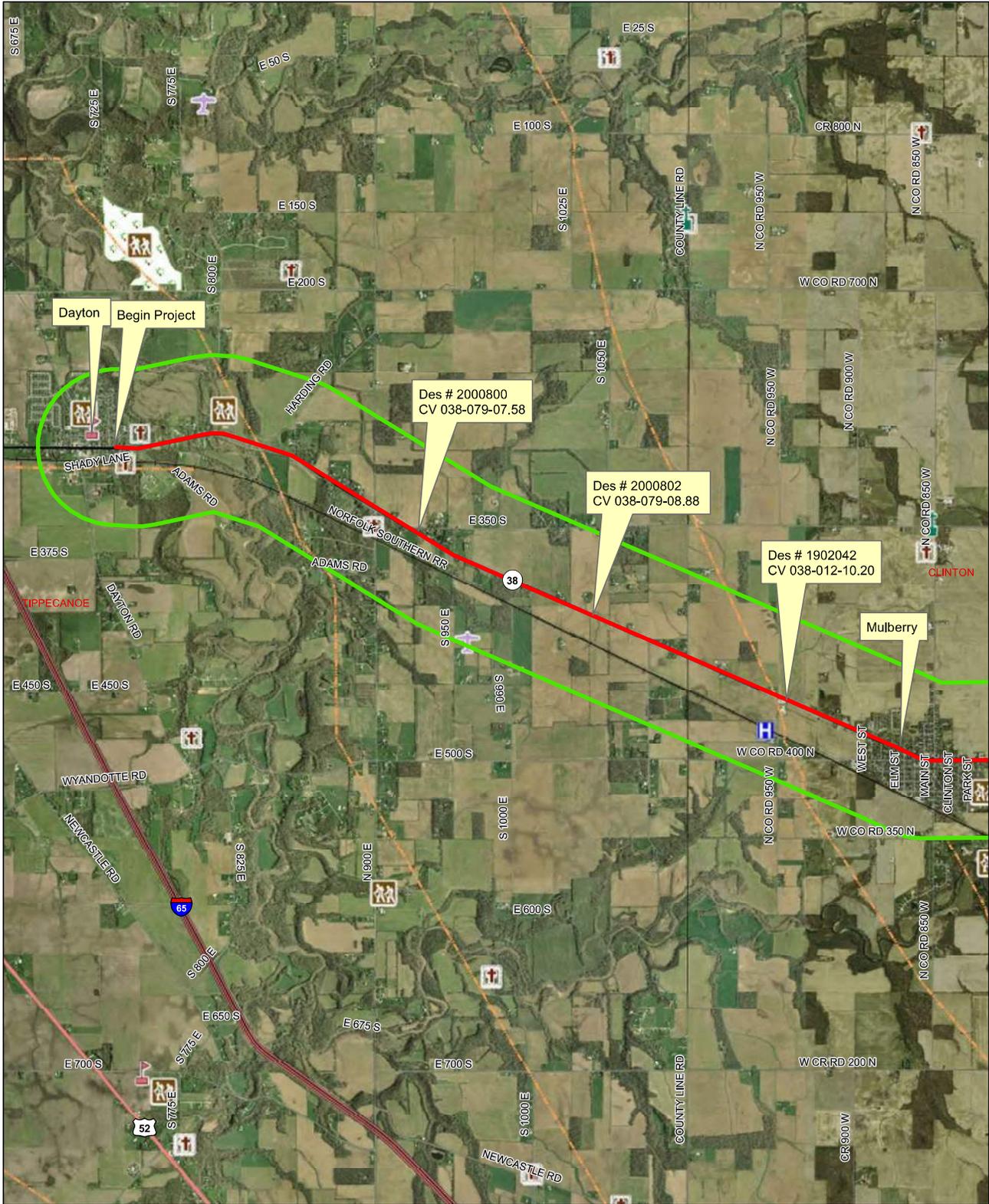
Red Flag Investigation - Site Location
 Des # 1601074
 SR 38, East Segment From Mulberry to US 421
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana



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**FRANKFORT, LAFAYETTE,
 MULBERRY, PYRMONT, AND
 STOCKWELL QUADRANGLE, INDIANA
 7.5 MINUTE SERIES (TOPOGRAPHIC)**

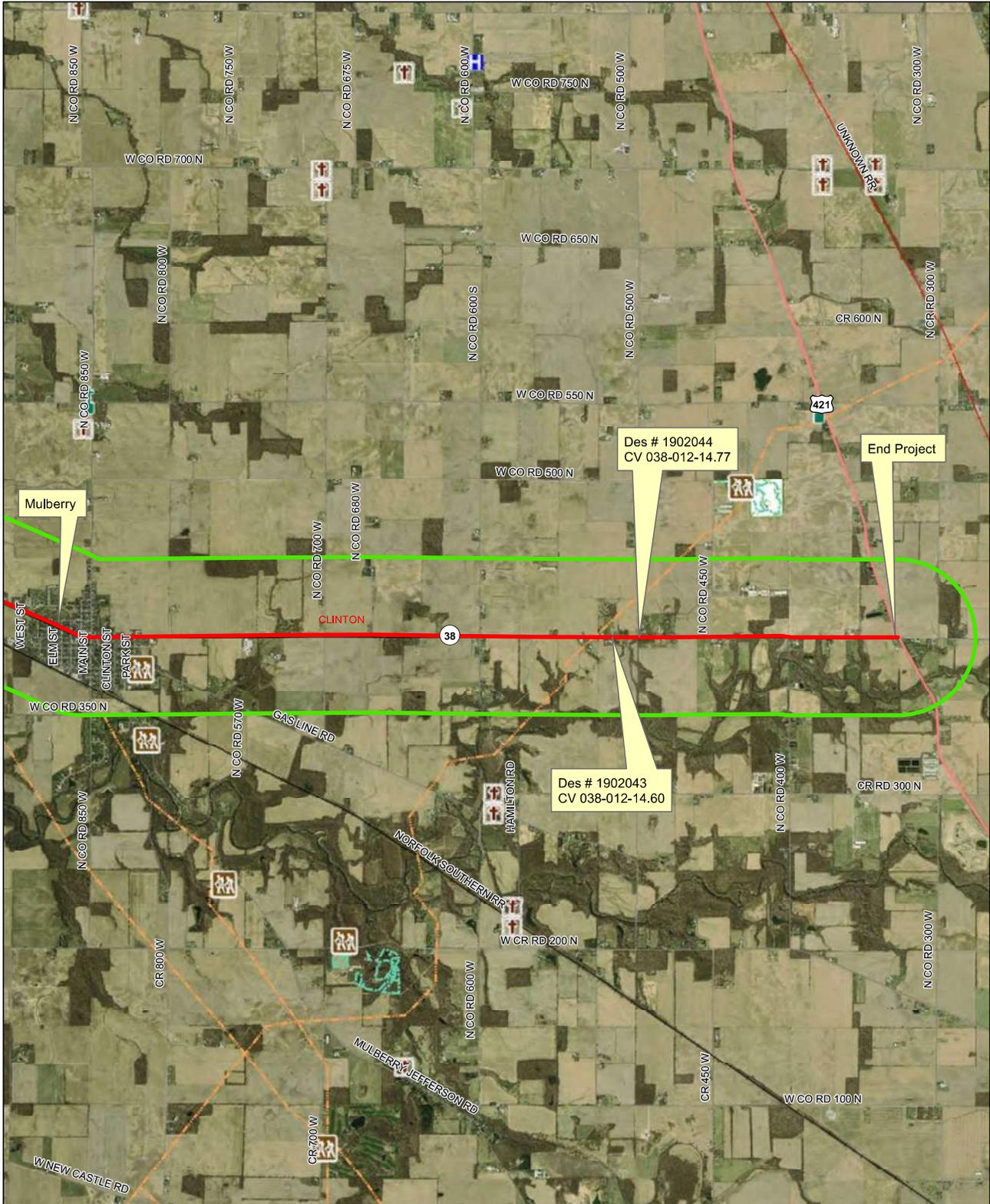
Red Flag Investigation - Infrastructure
 Des # 1601074
 SR 38, West Segment From Dayton to Mulberry
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana



Sources: 0.8 0.4 0 0.8 Miles
Non Orthophotography
 Data - Obtained from the State of Indiana Geographical Information Office Library
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	Religious Facility		Recreation Facility		Project Area
	Airport		Pipeline		Half Mile Radius
	Cemeteries		Railroad		Toll
	Hospital		Trails		Interstate
	School		Managed Lands		State Route
			County Boundary		US Route
					Local Road

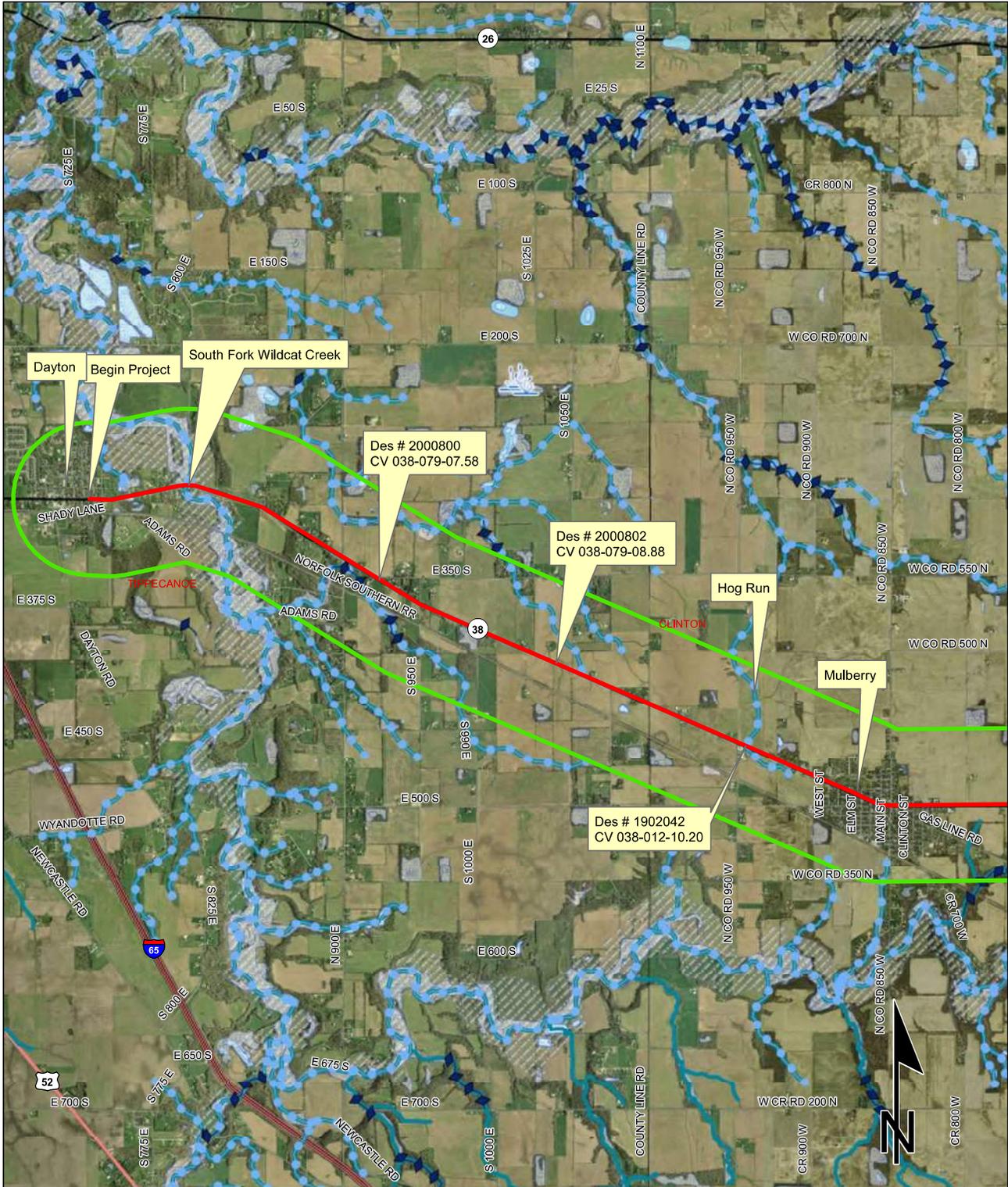
Red Flag Investigation - Infrastructure
 Des # 1601074
 SR 38, East Segment From Mulberry to US 421
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana



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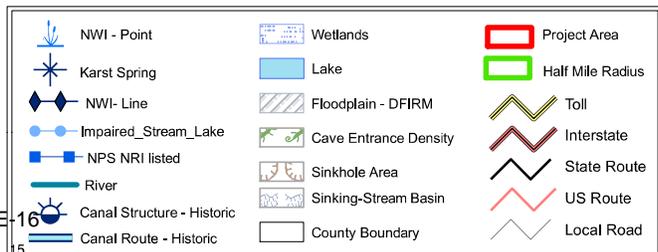
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Red Flag Investigation - Water Resources
 Des # 1601074
 SR 38, West Segment From Dayton to Mulberry
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana

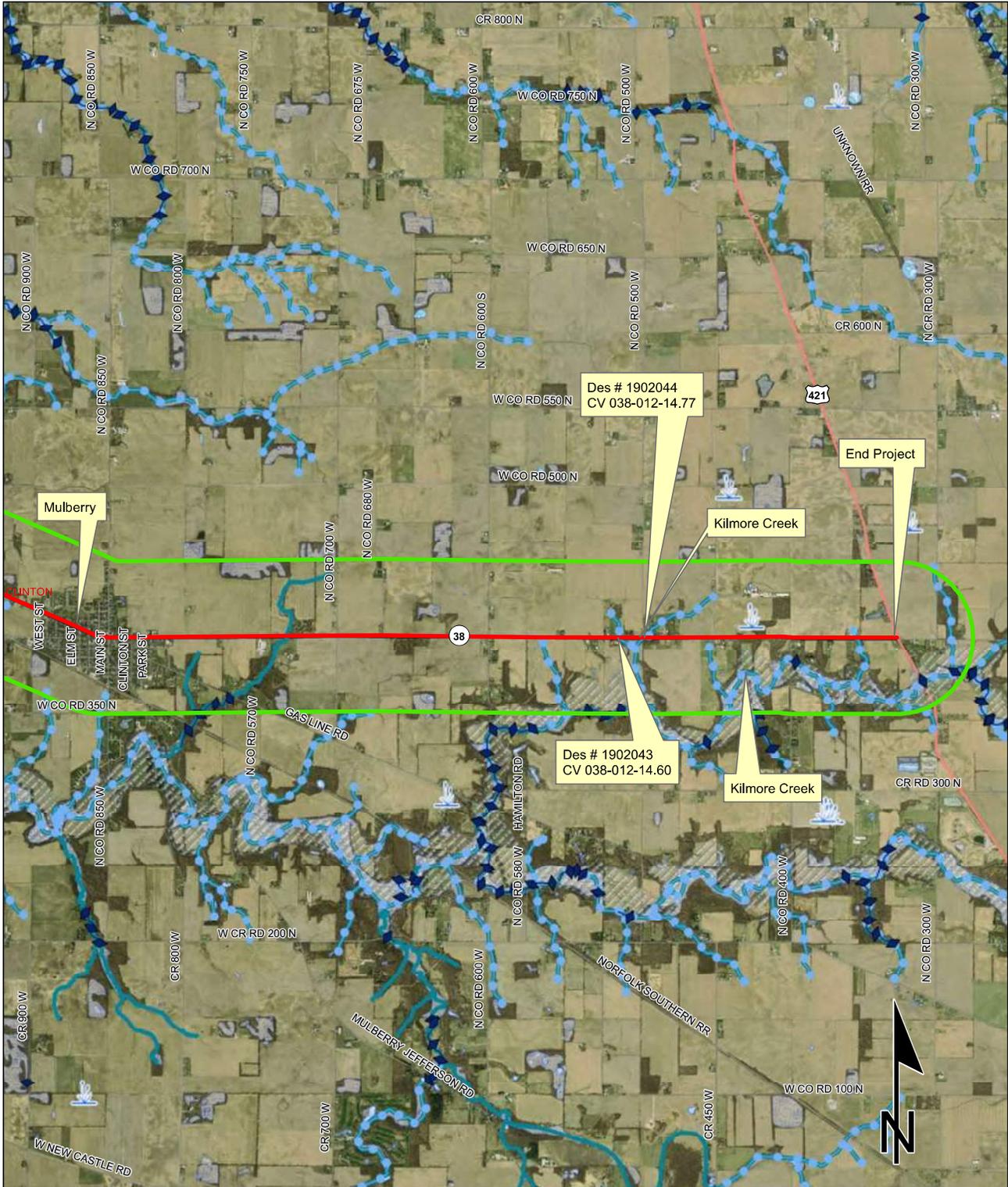


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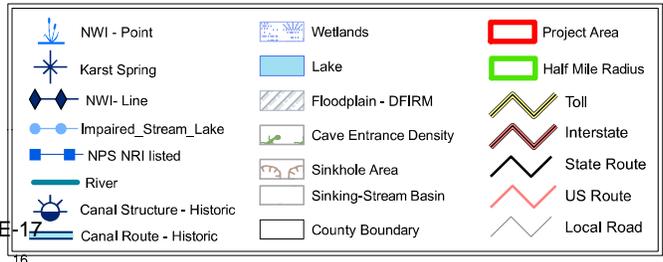


Red Flag Investigation - Water Resources
 Des # 1601074
 SR 38, East Segment From Mulberry to US 421
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana

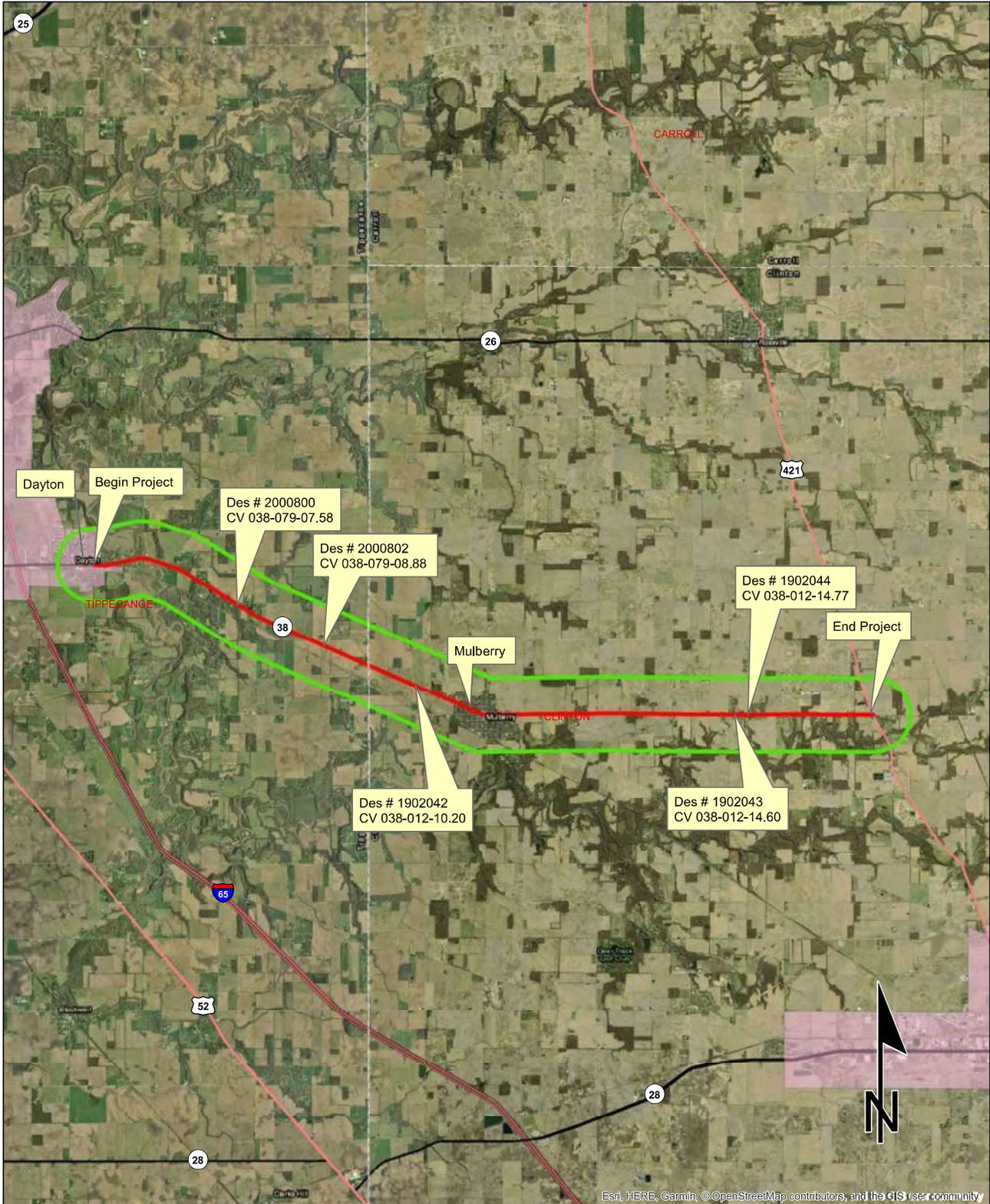


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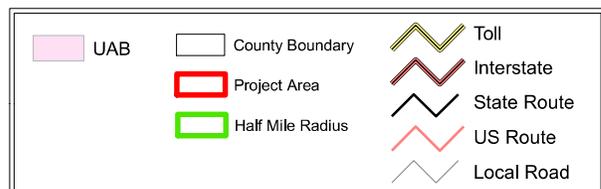
Red Flag Investigation - Urbanized Area Boundary
 Des # 1601074
 SR 38, Full Area View
 HMA Overlay Minor Structural
 Tippecanoe and Carroll Counties, Indiana



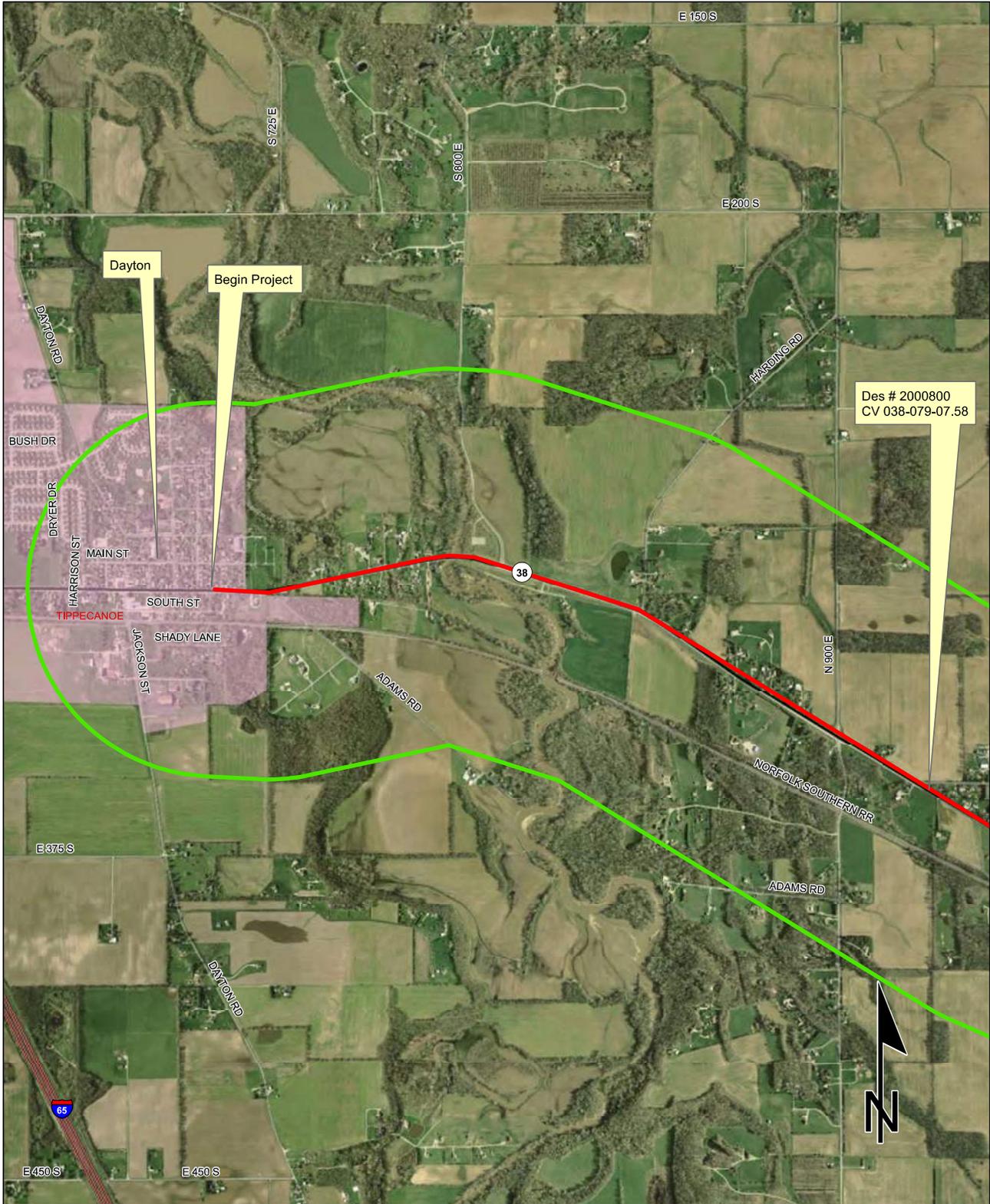
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

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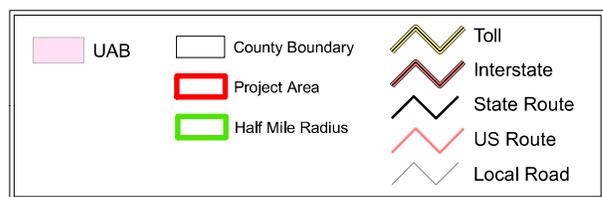


Red Flag Investigation - Urbanized Area Boundary
 Des # 1601074
 SR 38, Dayton Zoomed
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana

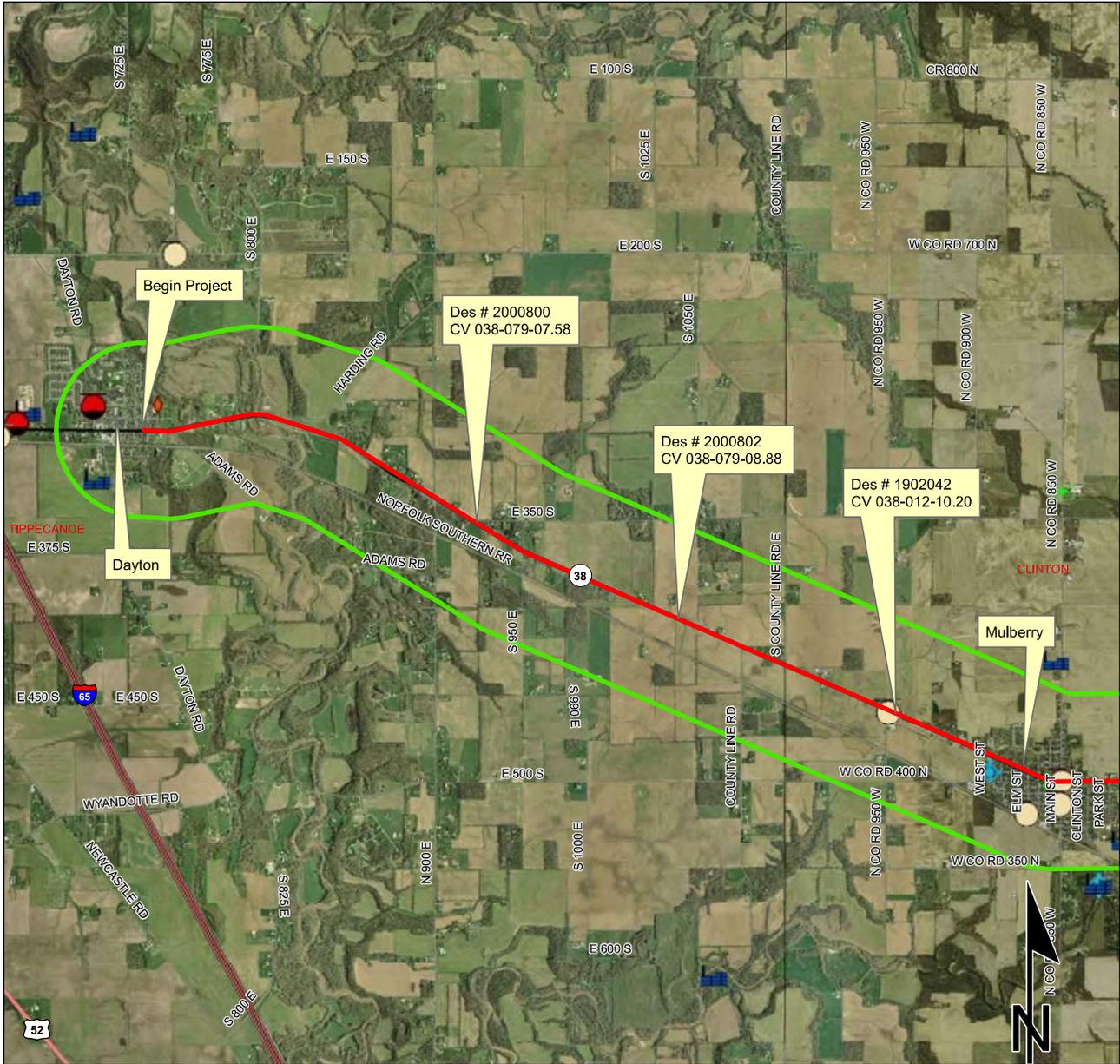


Sources:
Non Orthophotography
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Map Projection: UTM Zone 16 N **Map Datum:** NAD83

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Red Flag Investigation - Hazardous Material Concerns
 Des # 1601074
 SR 38, West Segment From Dayton to Mulberry
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana



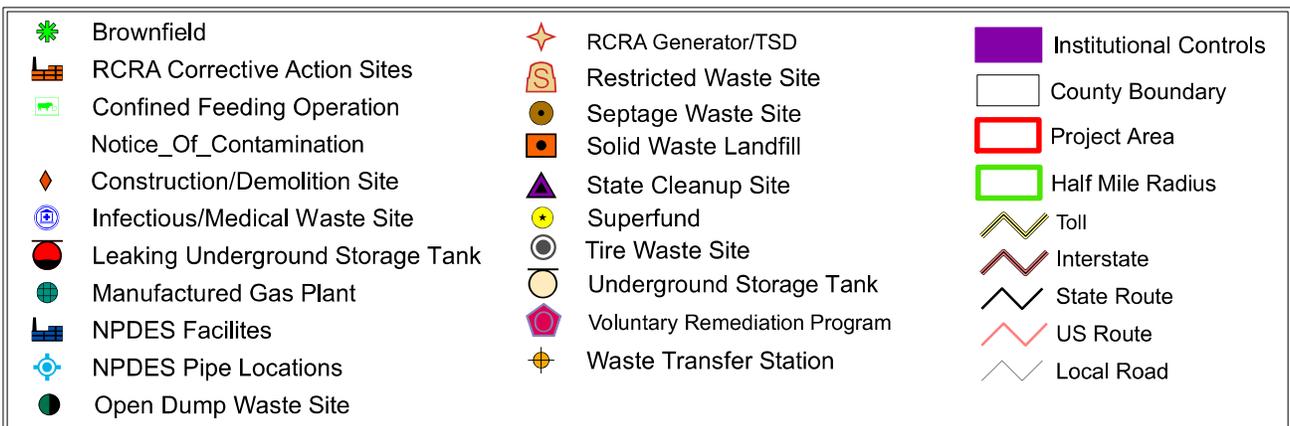
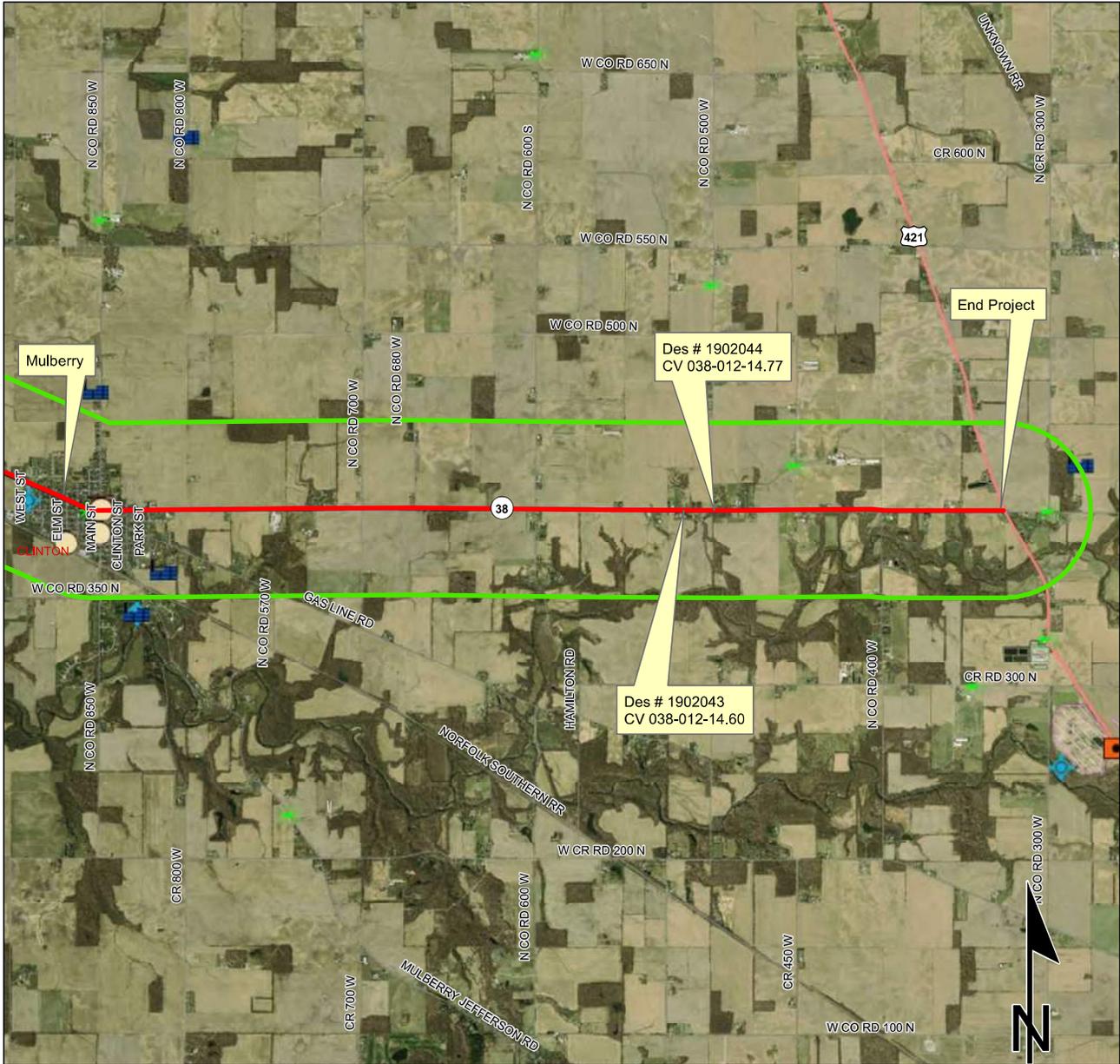
	Brownfield		RCRA Generator/TSD		Institutional Controls
	RCRA Corrective Action Sites		Restricted Waste Site		County Boundary
	Confined Feeding Operation		Septage Waste Site		Project Area
	Notice_Of_Contamination		Solid Waste Landfill		Half Mile Radius
	Construction/Demolition Site		State Cleanup Site		Toll
	Infectious/Medical Waste Site		Superfund		Interstate
	Leaking Underground Storage Tank		Tire Waste Site		State Route
	Manufactured Gas Plant		Underground Storage Tank		US Route
	NPDES Facilities		Voluntary Remediation Program		Local Road
	NPDES Pipe Locations		Waste Transfer Station		
	Open Dump Waste Site				



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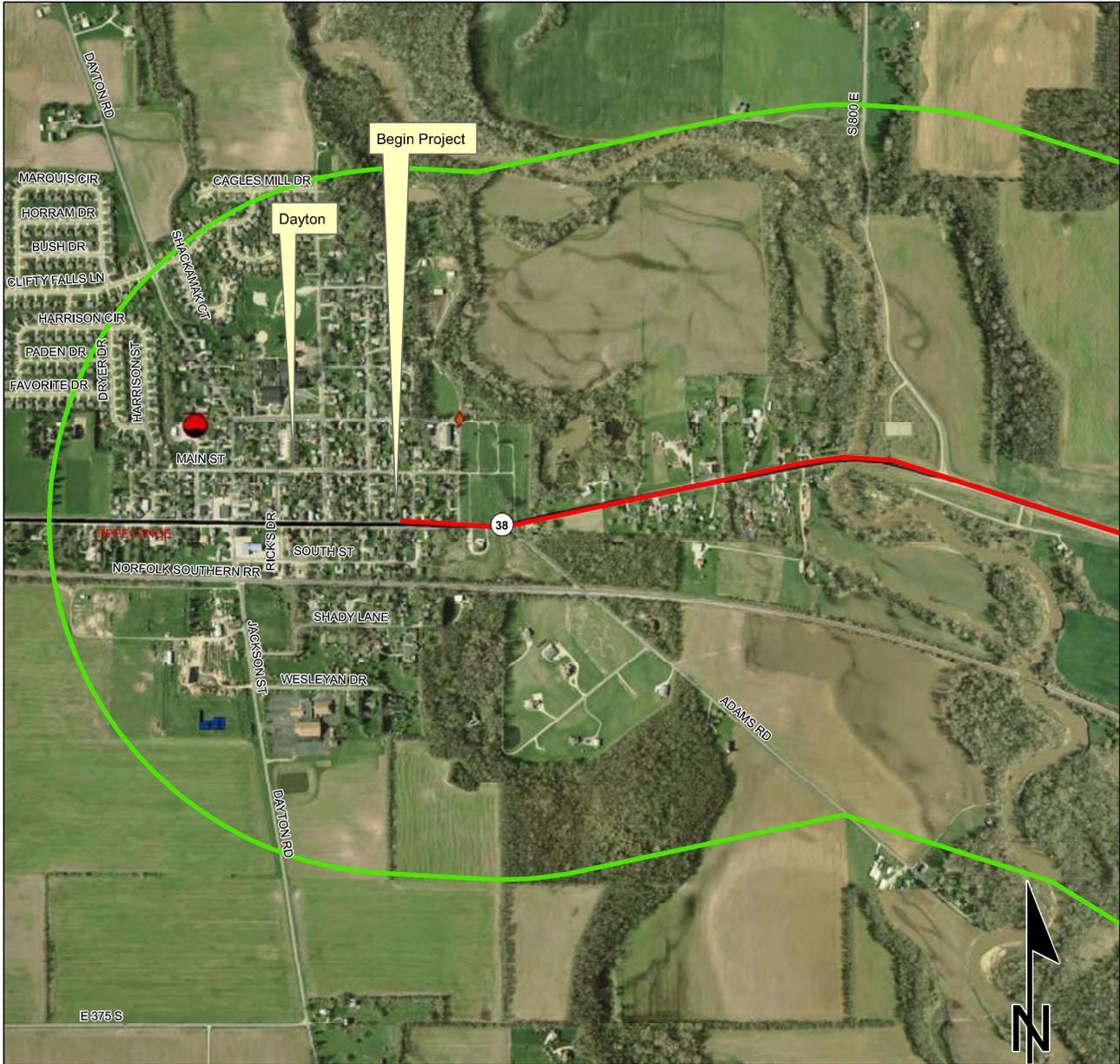
Red Flag Investigation - Hazardous Material Concerns
 Des # 1601074
 SR 38, East Segment From Mulberry to US 421
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana



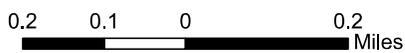
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Red Flag Investigation - Hazardous Material Concerns
 Des # 1601074
 SR 38, Dayton Zoomed
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana



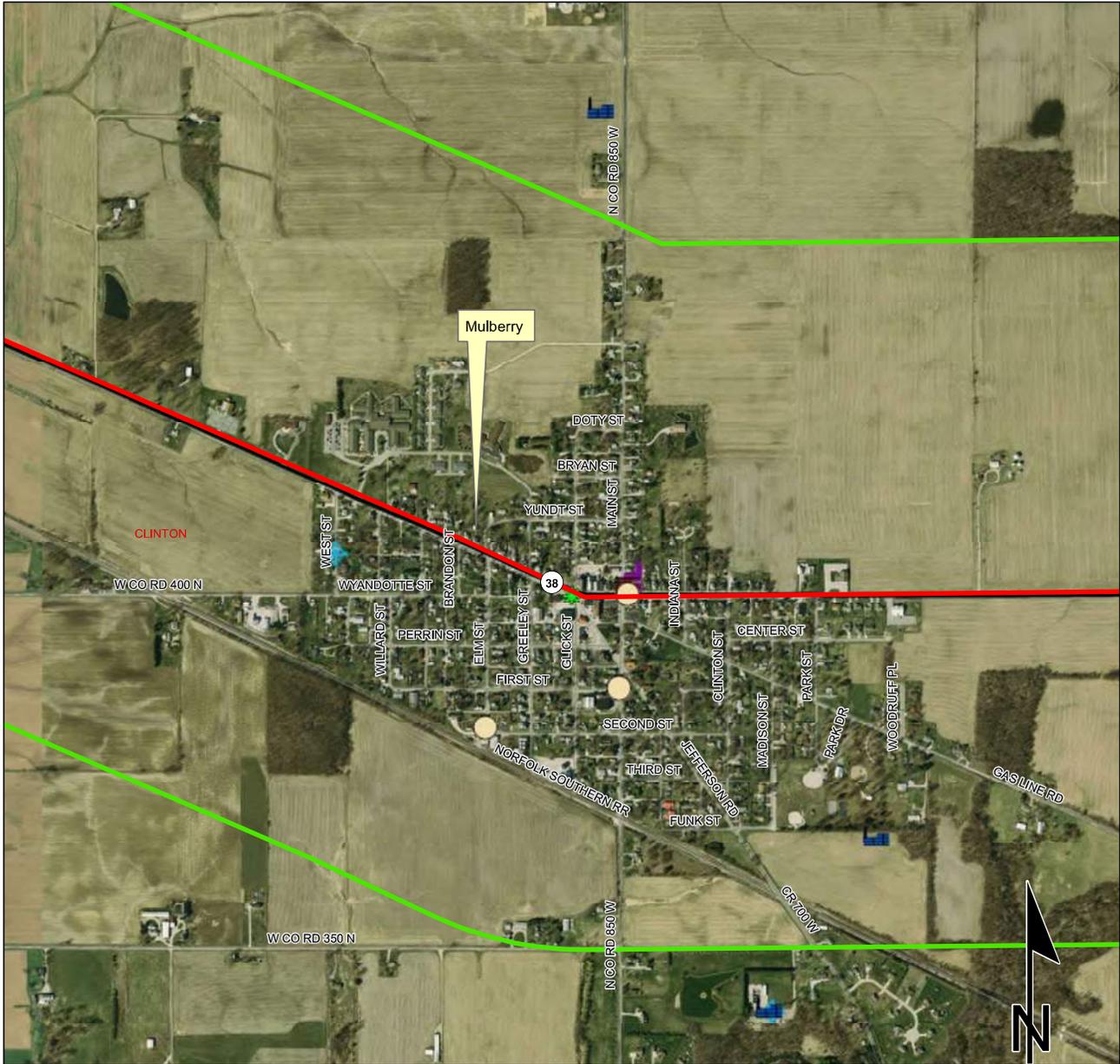
	Brownfield		RCRA Generator/TSD		Institutional Controls
	RCRA Corrective Action Sites		Restricted Waste Site		County Boundary
	Confined Feeding Operation		Septage Waste Site		Project Area
	Notice_Of_Contamination		Solid Waste Landfill		Half Mile Radius
	Construction/Demolition Site		State Cleanup Site		Toll
	Infectious/Medical Waste Site		Superfund		Interstate
	Leaking Underground Storage Tank		Tire Waste Site		State Route
	Manufactured Gas Plant		Underground Storage Tank		US Route
	NPDES Facilites		Voluntary Remediation Program		Local Road
	NPDES Pipe Locations		Waste Transfer Station		
	Open Dump Waste Site				



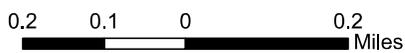
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Red Flag Investigation - Hazardous Material Concerns
 Des # 1601074
 SR 38, Mulberry Zoomed
 HMA Overlay Minor Structural
 Tippecanoe and Clinton Counties, Indiana



	Brownfield		RCRA Generator/TSD		Institutional Controls
	RCRA Corrective Action Sites		Restricted Waste Site		County Boundary
	Confined Feeding Operation Notice_Of_Contamination		Septage Waste Site		Project Area
	Construction/Demolition Site		Solid Waste Landfill		Half Mile Radius
	Infectious/Medical Waste Site		State Cleanup Site		Toll
	Leaking Underground Storage Tank		Superfund		Interstate
	Manufactured Gas Plant		Tire Waste Site		State Route
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	Open Dump Waste Site		Waste Transfer Station		



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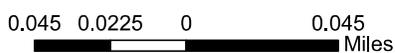
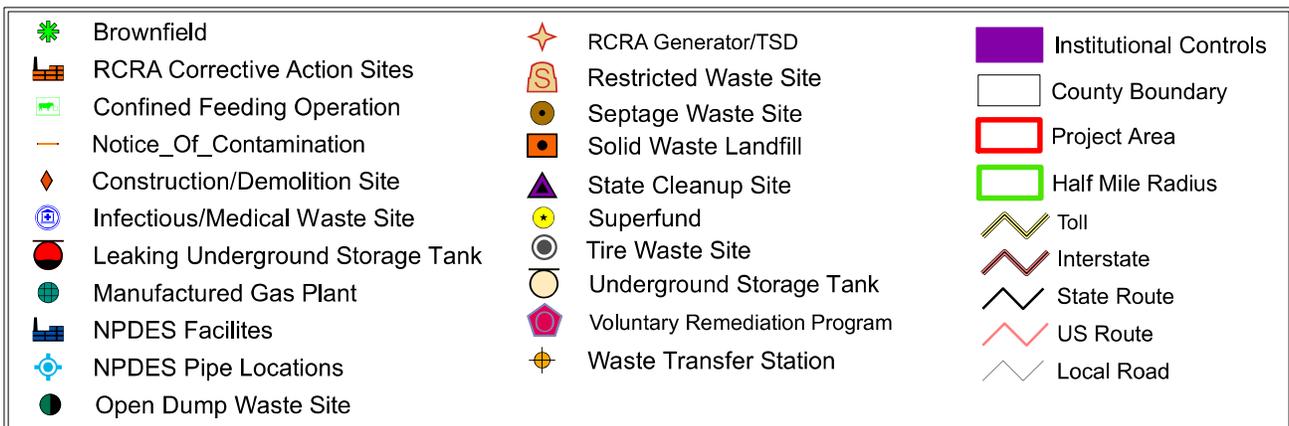
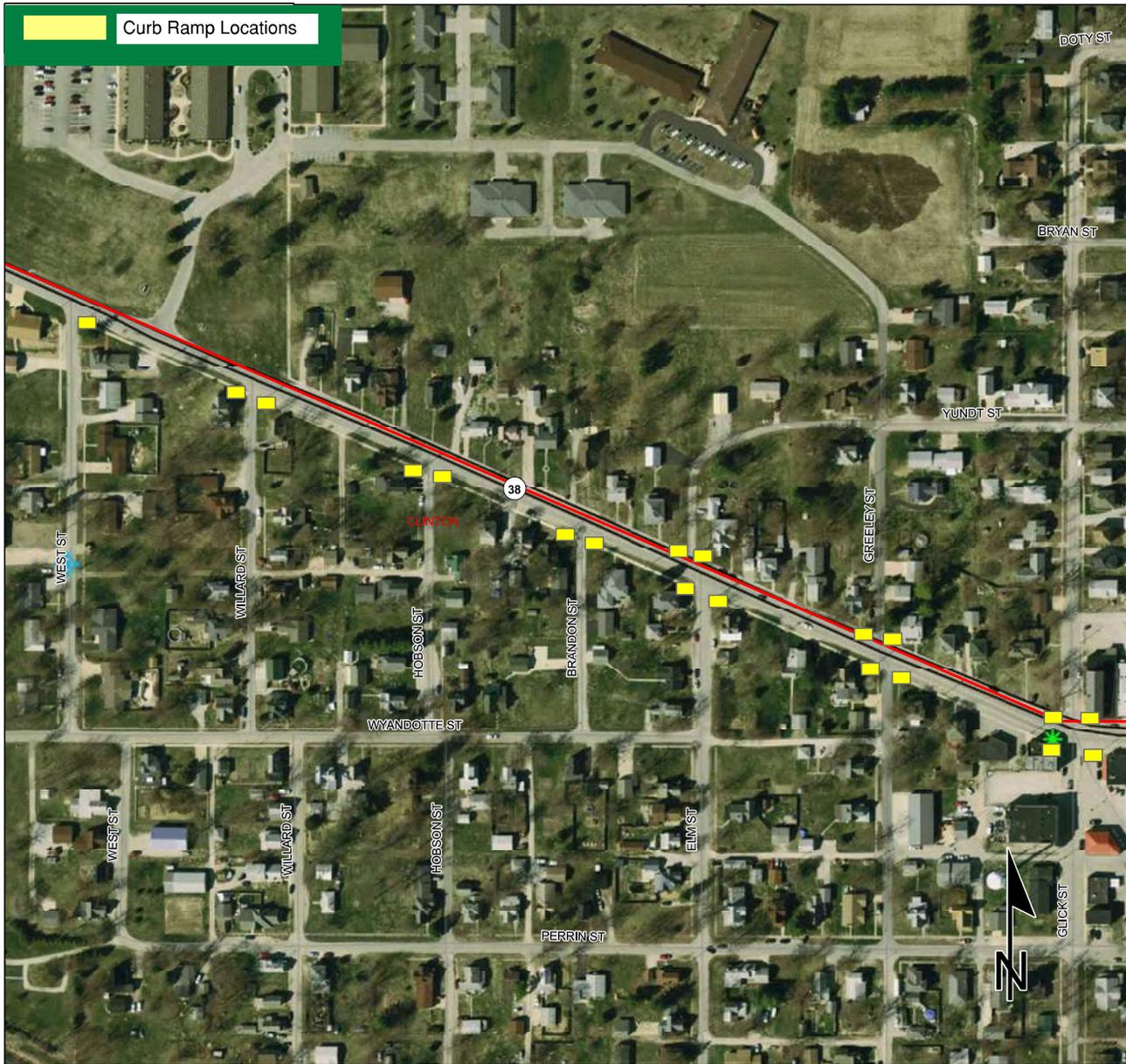
Red Flag Investigation - Hazardous Material Concerns

Des # 1601074

SR 38, West Segment of Mulberry

HMA Overlay Minor Structural

Tippecanoe and Clinton Counties, Indiana



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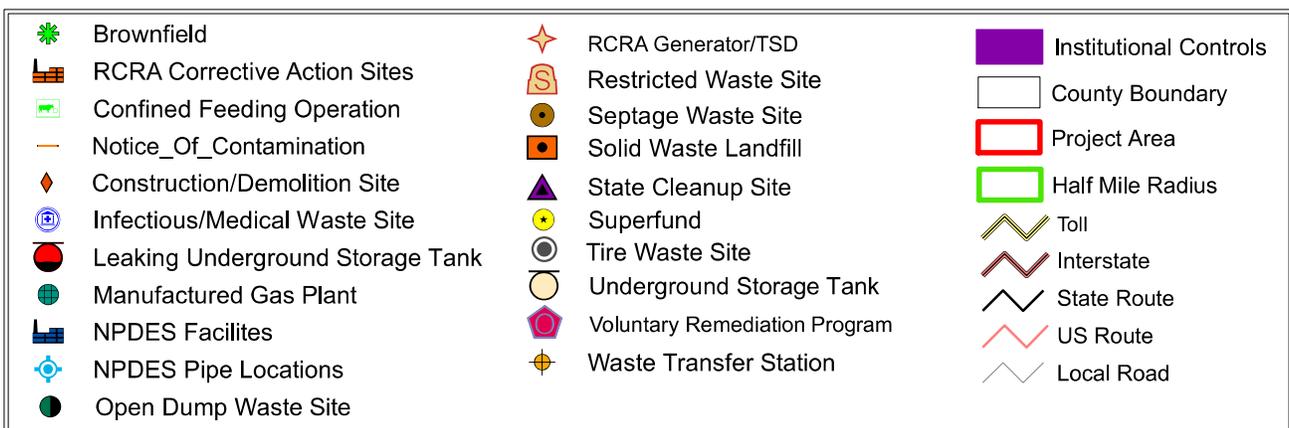
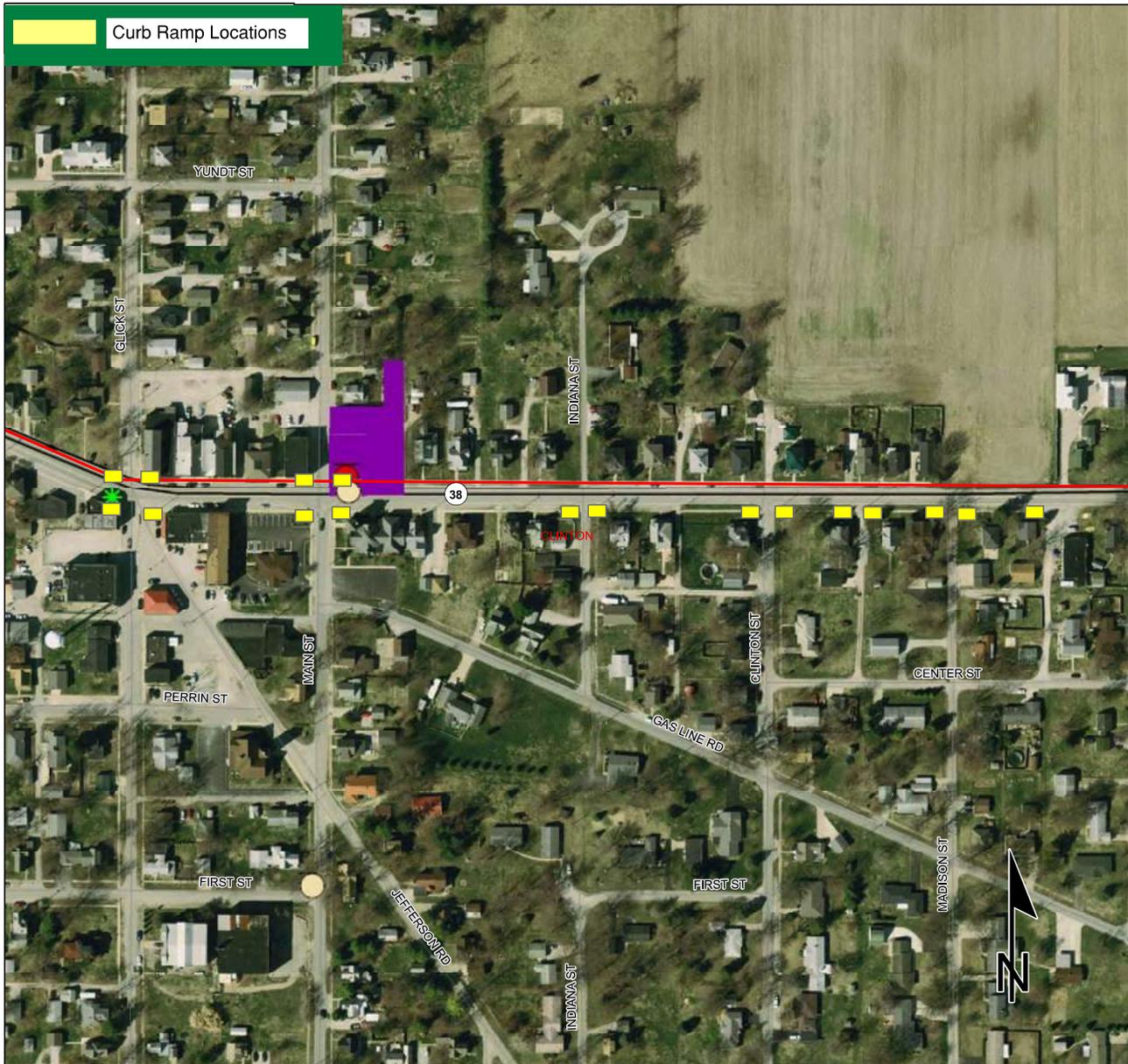
Red Flag Investigation - Hazardous Material Concerns

Des # 1601074

SR 38, East Segment of Mulberry

HMA Overlay Minor Structural

Tippecanoe and Clinton Counties, Indiana



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Map Projection: UTM Zone 16 N **Map Datum:** NAD83

Indiana County Endangered, Threatened and Rare Species List

County: Tippecanoe

Species Name	Common Name	FED	STATE	GRANK	SRANK
Mollusk: Bivalvia (Mussels)					
Cyprogenia stegaria	Eastern Fanshell Pearlymussel	LE	SE	G1Q	S1
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	S1
Epioblasma torulosa torulosa	Tubercled Blossom	LE	SE	G2TX	SX
Epioblasma triquetra	Snuffbox	LE	SE	G3	S1
Fusconaia subrotunda	Longsolid	C	SE	G3	SX
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Lampsilis ovata	Pocketbook			G5	S2
Leptodea leptodon	Scaleshell	LE	SX	G1G2	SX
Ligumia recta	Black Sandshell			G4G5	S2
Obovaria retusa	Ring Pink	LE	SX	G1	SX
Obovaria subrotunda	Round Hickorynut	C	SE	G4	S1
Plethobasus cicatricosus	White Wartyback	LE	SE	G1	SX
Plethobasus cyphus	Sheepnose	LE	SE	G3	S1
Pleurobema clava	Clubshell	LE	SE	G1G2	S1
Pleurobema cordatum	Ohio Pigtoe		SSC	G4	S2
Pleurobema plenum	Rough Pigtoe	LE	SE	G1	S1
Pleurobema pyramidatum	Pyramid Pigtoe		SE	G2G3	SX
Potamilus capax	Fat Pocketbook	LE	SE	G2	S1
Ptychobranhus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	LT	SE	G3G4T3	S1
Simpsonaias ambigua	Salamander Mussel	C	SSC	G3	S2
Toxolasma lividus	Purple Lilliput	C	SSC	G3Q	S2
Villosa fabalis	Rayed Bean	LE	SE	G2	S1
Insect: Coleoptera (Beetles)					
Lissobiops serpentinus	A Rove Beetle		SE	GNR	S1
Insect: Ephemeroptera (Mayflies)					
Paracloeodes minutus	A Small Minnow Mayfly			G5	S3
Insect: Hymenoptera					
Bombus affinis	Rusty-patched Bumble Bee	LE	SE	G1	S1
Insect: Lepidoptera (Butterflies & Moths)					
Euphydryas phaeton	Baltimore		SR	G5	S2
Speyeria idalia	Regal Fritillary	C	SE	G3	S1
Insect: Mecoptera					
Merope tuber	Earwig Scorpionfly		SE	G3G5	S1
Insect: Odonata (Dragonflies & Damselflies)					
Erpetogomphus designatus	Eastern Ringtail		ST	G5	S2
Somatochlora tenebrosa	Clamp-tipped Emerald		SR	G5	S2S3

Fish

Indiana Natural Heritage Data Center
Division of Nature Preserves
Indiana Department of Natural Resources
This data is not the result of comprehensive county surveys.

Fed: LE = Endangered; LT = Threatened; C = candidate; PDL = proposed for delisting
State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SX = state extirpated; SG = state significant; WL = watch list
GRANK: Global Heritage Rank: G1 = critically imperiled globally; G2 = imperiled globally; G3 = rare or uncommon globally; G4 = widespread and abundant globally but with long term concerns; G5 = widespread and abundant globally; G? = unranked; GX = extinct; Q = uncertain rank; T = taxonomic subunit rank
SRANK: State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

Indiana County Endangered, Threatened and Rare Species List

County: Tippecanoe

Species Name	Common Name	FED	STATE	GRANK	SRANK
<i>Etheostoma tippecanoe</i>	Tippecanoe Darter	C	SSC	G3G4	S3
<i>Percina evides</i>	Gilt Darter		SE	G4	S1
Amphibian					
<i>Hemidactylium scutatum</i>	Four-toed Salamander		SSC	G5	S2
<i>Lithobates blairi</i>	Plains Leopard Frog		SE	G5	S1
Reptile					
<i>Clemmys guttata</i>	Spotted Turtle	C	SE	G5	S2
<i>Emydoidea blandingii</i>	Blanding's Turtle	C	SE	G4	S2
<i>Opheodrys vernalis</i>	Smooth Green Snake		SE	G5	S2
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga	LT	SE	G3	S2
<i>Terrapene carolina carolina</i>	Eastern Box Turtle		SSC	G5T5	S3
<i>Terrapene ornata ornata</i>	Ornate Box Turtle		SE	G5T5	S1
Bird					
<i>Aimophila aestivalis</i>	Bachman's Sparrow			G3	SXB
<i>Ammodramus henslowii</i>	Henslow's Sparrow		SE	G4	S3B
<i>Asio flammeus</i>	Short-eared Owl		SE	G5	S2
<i>Asio otus</i>	Long-eared Owl			G5	S2
<i>Aythya collaris</i>	Ring-necked Duck			G5	SHB
<i>Bartramia longicauda</i>	Upland Sandpiper		SE	G5	S3B
<i>Botaurus lentiginosus</i>	American Bittern		SE	G5	S2B
<i>Buteo platypterus</i>	Broad-winged Hawk		SSC	G5	S3B
<i>Carduelis pinus</i>	Pine Siskin			G5	S3N
<i>Chordeiles minor</i>	Common Nighthawk		SSC	G5	S4B
<i>Cistothorus platensis</i>	Sedge Wren		SE	G5	S3B
<i>Falco peregrinus</i>	Peregrine Falcon		SSC	G4	S2B
<i>Grus canadensis</i>	Sandhill Crane		SSC	G5	S2B,S1N
<i>Haliaeetus leucocephalus</i>	Bald Eagle		SSC	G5	S2
<i>Ixobrychus exilis</i>	Least Bittern		SE	G5	S3B
<i>Lanius ludovicianus</i>	Loggerhead Shrike		SE	G4	S3B
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron		SE	G5	S1B
<i>Rallus elegans</i>	King Rail		SE	G4	S1B
<i>Setophaga cerulea</i>	Cerulean Warbler		SE	G4	S3B
<i>Sturnella neglecta</i>	Western Meadowlark		SSC	G5	S2B
<i>Tyto alba</i>	Barn Owl		SE	G5	S2
Mammal					
<i>Geomys bursarius</i>	Plains Pocket Gopher		SSC	G5	S2
<i>Lasiurus borealis</i>	Eastern Red Bat		SSC	G3G4	S4
<i>Mustela nivalis</i>	Least Weasel		SSC	G5	S2?
<i>Myotis septentrionalis</i>	Northern Long Eared Bat	LT	SSC	G1G2	S2S3
<i>Myotis sodalis</i>	Indiana Bat or Social Myotis	LE	SE	G2	S1

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Indiana County Endangered, Threatened and Rare Species List

County: Tippecanoe

Species Name	Common Name	FED	STATE	GRANK	SRANK
<i>Nycticeius humeralis</i>	Evening Bat		SE	G5	S1
<i>Plecotus rafinesquii</i>	Rafinesque's Big-eared Bat		SSC	G3G4	SH
<i>Reithrodontomys megalotis</i>	Western Harvest Mouse			G5	S2
<i>Spermophilus franklinii</i>	Franklin's Ground Squirrel		SE	G5	S2
<i>Taxidea taxus</i>	American Badger		SSC	G5	S2
Vascular Plant					
<i>Androsace occidentalis</i>	Western Rockjasmine		ST	G5	S2
<i>Astragalus tennesseensis</i>	Tennessee Milk-vetch		SRE	G3	SX
<i>Bacopa rotundifolia</i>	Roundleaf Water-hyssop		ST	G5	S1
<i>Besseyia bullii</i>	Kitten Tails		SE	G3	S1
<i>Botrychium matricariifolium</i>	Chamomile Grape-fern		SR	G5	S2
<i>Botrychium simplex</i>	Least Grape-fern		SE	G5	S1
<i>Camassia angusta</i>	Wild Hyacinth		SE	G5?Q	S1
<i>Carex flava</i>	Yellow Sedge		ST	G5	S2
<i>Carex gravida</i>	Heavy Sedge		SE	G5	S1
<i>Chelone obliqua</i> var. <i>speciosa</i>	Rose Turtlehead		WL	G4T3	S3
<i>Chrysopsis villosa</i>	Hairy Golden-aster		ST	G5	S2
<i>Circaea alpina</i>	Small Enchanter's Nightshade		SX	G5	SX
<i>Cirsium hillii</i>	Hill's Thistle		SE	G3	S1
<i>Coeloglossum viride</i> var. <i>virescens</i>	Long-bract Green Orchis		ST	G5T5	S2
<i>Crataegus pedicellata</i>	Scarlet Hawthorn		ST	G5	S2
<i>Cypripedium candidum</i>	Small White Lady's-slipper		WL	G4	S2
<i>Eriophorum angustifolium</i>	Narrow-leaved Cotton-grass		SR	G5	S2
<i>Erysimum capitatum</i>	Prairie-rocket Wallflower		ST	G5	S2
<i>Euphorbia obtusata</i>	Bluntleaf Spurge		SE	G5	S1
<i>Gentiana alba</i>	Yellow Gentian		SR	G4	S2
<i>Hedyotis nigricans</i>	Narrowleaf Summer Bluets		SR	G5	S2
<i>Linum sulcatum</i>	Grooved Yellow Flax		SR	G5	S2
<i>Lithospermum incisum</i>	Narrow-leaved Puccoon		SE	G5	S1
<i>Melampyrum lineare</i>	American Cow-wheat		SR	G5	S2
<i>Minuartia patula</i>	Pitcher's Stitchwort		SE	G4	S1
<i>Muhlenbergia cuspidata</i>	Plains Muhlenbergia		SE	G5	S1
<i>Napaea dioica</i>	Glade Mallow		SR	G4	S2
<i>Onosmodium hispidissimum</i>	Shaggy False-gromwell		SE	G4G5T4	S1
<i>Orobanche riparia</i>	Bottomland Broomrape		SE	G4?	S2
<i>Oryzopsis racemosa</i>	Black-fruit Mountain-ricegrass		SR	G5	S2
<i>Panicum rigidulum</i> var. <i>pubescens</i>	Long-leaved Panic-grass		SX	G5T5?	SX
<i>Plantago cordata</i>	Heart-leaved Plantain		SE	G4	S1
<i>Platanthera psychodes</i>	Small Purple-fringe Orchis		SR	G5	S2
<i>Poa paludigena</i>	Bog Bluegrass		WL	G3	S3

Indiana Natural Heritage Data Center
Division of Nature Preserves
Indiana Department of Natural Resources
This data is not the result of comprehensive county surveys.

Fed: LE = Endangered; LT = Threatened; C = candidate; PDL = proposed for delisting
State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SX = state extirpated; SG = state significant; WL = watch list
GRANK: Global Heritage Rank: G1 = critically imperiled globally; G2 = imperiled globally; G3 = rare or uncommon globally; G4 = widespread and abundant globally but with long term concerns; G5 = widespread and abundant globally; G? = unranked; GX = extinct; Q = uncertain rank; T = taxonomic subunit rank
SRANK: State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

Indiana County Endangered, Threatened and Rare Species List

County: Tippecanoe

Species Name	Common Name	FED	STATE	GRANK	SRANK
<i>Psoralea tenuiflora</i>	Few-flowered Scurf-pea		SX	G5	SX
<i>Sanguisorba canadensis</i>	Canada Burnet		SE	G5	S1
<i>Selaginella apoda</i>	Meadow Spike-moss		WL	G5	S1
<i>Silene regia</i>	Royal Catchfly		ST	G3	S2
<i>Spiranthes lucida</i>	Shining Ladies'-tresses		SR	G4	S2
<i>Symphyotrichum oblongifolium</i>	Aromatic Aster		SR	G5	S2
<i>Trichostema dichotomum</i>	Forked Bluecurl		SR	G5	S2
<i>Viola pedatifida</i>	Prairie Violet		ST	G5	S2
High Quality Natural Community					
Barrens - gravel	Gravel Slope Barrens		SG	G3	S1
Barrens - sand	Sand Barrens		SG	G3	S2
Forest - upland dry-mesic Central Till Plain	Central Till Plain Dry-mesic Upland Forest			GNR	S2
Forest - upland mesic Central Till Plain	Central Till Plain Mesic Upland Forest			GNR	S3
Lake - lake	Lake		SG	GNR	S2
Prairie - dry-mesic	Dry-mesic Prairie		SG	G3	S2
Wetland - fen	Fen		SG	G3	S3
Wetland - marsh	Marsh		SG	GU	S4
Wetland - seep circumneutral	Circumneutral Seep		SG	GU	S1
Other Significant Feature					
Geomorphic - Nonglacial Erosional Feature - Water Fall and Cascade	Water Fall and Cascade			GNR	SNR

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Indiana County Endangered, Threatened and Rare Species List

County: Clinton

Species Name	Common Name	FED	STATE	GRANK	SRANK
Mollusk: Bivalvia (Mussels)					
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Pleurobema clava	Clubshell	LE	SE	G1G2	S1
Ptychobranchnus fasciolaris	Kidneyshell		SSC	G4G5	S2
Simpsonaias ambigua	Salamander Mussel	C	SSC	G3	S2
Toxolasma lividus	Purple Lilliput	C	SSC	G3Q	S2
Bird					
Buteo lineatus	Red-shouldered Hawk		SSC	G5	S3
Cistothorus platensis	Sedge Wren		SE	G5	S3B
Haliaeetus leucocephalus	Bald Eagle		SSC	G5	S2
Lanius ludovicianus	Loggerhead Shrike		SE	G4	S3B
Nycticorax nycticorax	Black-crowned Night-heron		SE	G5	S1B
Mammal					
Myotis sodalis	Indiana Bat or Social Myotis	LE	SE	G2	S1
Taxidea taxus	American Badger		SSC	G5	S2
High Quality Natural Community					
Forest - flatwoods central till plain	Central Till Plain Flatwoods		SG	G3	S2
Prairie - mesic	Mesic Prairie		SG	G2	S2

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Indiana Department of Natural Resources
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APPENDIX F

Water Resources

APPROVED

Justus McGill
5/11/20

Waters of the U.S. Determination Report

SR 38 HMA Overlay and Minor Structural in Tippecanoe and Clinton Counties, Indiana Des. No. 1601074 Asset ID#: CV 038-079-07.58

Prepared for:
Indiana Department of Transportation
Crawfordsville District
41 West 300 North
Crawfordsville, IN 47933

Prepared by:
Hanson Professional Services Inc.
7820 Innovation Blvd, Suite 200
Indianapolis, IN 46278

*Field Investigation Dates:
June 18 and June 20, 2019
February 11, 2020
Completed Date: October 15, 2019*

INDOT EWPO Approval Date:

1. Waters Report

SR 38 HMA Overlay and Minor Structural project, Des. No. 1601074
Sheffield Township and Madison Township, Tippecanoe and Clinton Counties, Indiana
Prepared by Tamra L. Reece and Shawn Gibbs, Environmental Specialists, Hanson
Professional Services Inc.

Contact Information:

TReece@hanson-inc.com, 260-610-2600; sqibbs@hanson-inc.com, 217-747-9228

Report Completed: October 15, 2019

2. Project Information

This report documents the findings of the wetlands and waters of the United States (WOTUS) survey conducted on June 18 and June 20, 2019 for the SR 38 project. Additional photos were also taken on February 11, 2020.

Hanson Professional Services Inc., on behalf of the Indiana Department of Transportation (INDOT), conducted a wetlands and WOTUS determination for the proposed SR 38 Hot-mix Asphalt (HMA) Overlay Minor Structural project from 1.18 miles east of I-65 to US 421 west junction in Sheffield Township, Tippecanoe County, Indiana and Madison, Ross and Washington townships, Clinton County Indiana (see Figure 1):

- Tippecanoe County: Township 22 North, Range 3 West, Sections 2, 3, 4, 9, 10, 11, 12, 13;
- Clinton County: Township 22 North, Range 2 West, Sections 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, and Township 22 North, Range 1 West, Sections 18, 19;
- Lafayette East, Stockwell, Mulberry and Frankfort, Indiana quadrangles;
- Latitude/Longitude: 40.3740/-86.7617 (west terminus), 40.3442/-86.5671 (east terminus).

3. Project Description

This state route corridor was identified for improvement due to the poor structural and operational condition of the existing pavement. Pavement conditions include moderate to severe transverse and longitudinal cracking, as well as moderate rutting and raveling.

The proposed project consists of mill and overlay of the roadway and widening of the shoulders from 1.18 miles east of I-65 within the town of Dayton to SR 39/US 421 west junction. Guardrail is anticipated to be installed where necessary. Through the Town of Mulberry, the project involves mill and overlay of the roadway with replacement of curb and gutter and curb ramps. The installation of street parking may be included through the Town of Mulberry. Replacement, extension, grouting, and/or cleaning is recommended for approximately 36 drainage structures. Information regarding these structures is included in Table 1 below and their locations can be

observed in Figure 4, Sheets 1-25. Location information was not available for structure numbers 745 and 954.

Table 1 Drainage Structures

Structure Number	INDOT ID and Hanson Survey Points	Structure Type	Pipe Size	Recommended Work
495	CLV-038-079-7.58	CMP – Metal Pipe	16"	Replace smashed end and add end sections / 15"
514	CLV-038-079-7.95	BC – Box Culvert / CMP – Metal Pipe	36" box with 24" insert	Extend box and grout fill box around pipe
540	CLV-038-079-8.43	CMP – Metal Pipe	Appears to be 15"	Extend and add end sections, 15"
561	CLV-038-079-8.85	CMP – Metal Pipe	32" x 24"	Extend, replace end sections, clear around and inside pipe
562	CLV-038-079-8.86	CMP – Metal Pipe	32" x 24"	Extend, replace end section, clear around and inside pipe
573	N/A	CMP – Metal Pipe	12"	Replace south end section, possibly replace with 15"
582	CLV-038-079-9.25	CMP – Metal Pipe	15"	Extend and replace with 15" pipe to accommodate for shoulder widening
601	N/A	CMP – Metal Pipe	15"	Extend and replace with 15" pipe and metal end sections to accommodate for shoulder widening
630	N/A	C – Concrete Pipe/ VC – Vitrified Clay	24"	Replace with 24" CMP
634	(Approx.) CLV-038-079-10.22	CMP – Metal Pipe	84"	Extend structure, add headwall for hydraulic efficiency, replace guardrail
646	CLV-038-012-10.47	CMP – Metal Pipe	18"	Pipe extensions for the north and south end, removing and replacing the damaged portions with 18" CMP
656	N/A	CMP – Metal Pipe	15"	Smashed pipe end to be replaced and pipe to be extended on both ends to accommodate for shoulder widening
689	IMB-038-012-11.23	I – inlet	N/A	Replace curb behind casting
710	CLV-038-012-11.65	CMP – Metal Pipe	15"	Replace with 15" CMP

721	CLV-038-012-11.86	CMP – Metal Pipe	30”	Replace with 42” CMP
733	CLV-038-012-12.10	CMP – Metal Pipe	18”	Clean, possible extension for shoulder widening
745	N/A	CMP – Metal Pipe	18”	Relocate to accommodate shoulder widening
765	N/A	CMP – Metal Pipe	18”	Replace with 18” CMP, extend to accommodate shoulder widening
766	CLV-038-012-12.73	CMP – Metal Pipe	15”	Replace with 15” CMP
802	CLV-038-012-13.41	CMP – Metal Pipe	18”	Replace with 18” CMP, extend to accommodate shoulder widening
807	CLV-038-012-13.51	CMP – Metal Pipe	18”	Replace with 18” CMP, extend to accommodate shoulder widening
822	CLV-038-012-13.78	CMP – Metal Pipe	8”	Replace and extend on each side, add end sections. Recommend 15” pipe
837	CLV-038-012-14.07	BCCMP – Metal Pipe	18”	Replace smashed end and extend 4’ of pipe. Regrade ditch and clean flow line.
851	CLV-038-012-14.35	CMP – Metal Pipe	48”	Regrade ditch line, extend pipe to accommodate shoulder widening, add metal end sections.
864	(Approx.) CLV-038-012-14.60	CMP – Metal Pipe	48”	Extend pipe due to shoulder widening, replace headwalls, or taper roadway and leave as-is
870	CLV-038-012-14.72	CMP – Metal Pipe	18”	Existing to remain. Address erosion above pipe.
871	N/A	CMP – Metal Pipe	24”	Clean, extend for shoulder widening
873	(Approx.) CLV-038-012-14.77	RC – Box	7’ span x 5’ rise	Replace
887	N/A	RCP	12”	Replace and extend pipe to accommodate shoulder widening, add metal end sections
896	CLV-038-012-15.21	CMP – Metal Pipe	15”	Full depth pavement replacement above structure. Regrade ditch line.
897	CLV-038-012-15.21	CMP – Metal Pipe	12” or 15”	Cleaning
906	CLV-038-012-15.39	PP – Plastic Pipe/PL – Plastic Liner	24”	Riprap needed on north end
913	N/A	CMP – Metal Pipe	36”	Line and grout fill around liner, extend, and add end sections
922	CLV-038-012-15.69	CMP – Metal Pipe	21” x 23”	Replace and extend with elliptical pipe to accommodate shoulder widening

933	CLV-038-012-15.91	C – Concrete Pipe	14”	Replace with 15” CMP
954	N/A	N/A	Approx. less than 36”	Possible pipe needed. More information and design needed.

4. Desktop Reconnaissance

Data from the U.S. Geological Survey (USGS) 7.5 minute quadrangle maps, the USGS National Hydrography Dataset (NHD), the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey, the U.S. Fish and Wildlife Service National Wetlands Inventory (NWI), and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) were used to provide an indication of areas where waters and wetlands potentially occur.

USGS Quadrangle Map:

The USGS Topographic (7.5 minute quadrangle) maps for Lafayette East (1998), Frankfort (1961, photo revised 1991), Mulberry (1961, photo revised 1980), and Stockwell (1961, photo revised 1980) quadrangles were reviewed. The maps depict South Fork Wildcat Creek, one intermittent stream tributary to South Fork Wildcat Creek, three intermittent stream tributaries to Kilmore Creek, and an intermittent stream tributary to Hog Run in the study area (see Figures 2A, 2B and 2C).

The South Fork of Wildcat Creek, Hog Run and Kilmore Creek are tributaries of Wildcat Creek, which is a tributary of the Wabash River in north-central Indiana. The South Fork of Wildcat Creek generally flows east to west on the south side of SR 38 before draining north across SR 38 east of the town of Dayton, Indiana; and eventually converges with the Wildcat Creek at Wildcat Creek Park. Hog Run generally flows east to west to the north of Mulberry, Indiana before draining north into the Middle Fork of Wildcat Creek. Kilmore Creek generally flows east to west to the south of Mattix Corner, Indiana before draining south into the South Fork of Wildcat Creek.

USGS National Hydrography Dataset (NHD):

The USGS NHD for Hydrologic Unit 12 (HU) #051201070306 depicts 16 flowlines within or adjacent to the study area. The NHD represents the water drainage network surface component of a geographic area and was used to evaluate the potential for streams within the study area. These flowlines are depicted as blue lines on the sheets of Figure 3.

Soils:

The NRCS Web Soil Survey is generated from USDA-NRCS certified data for Tippecanoe and Clinton counties, Indiana. Soil mapping units within the study area are depicted in Figure 3 and presented in Table 2. According to the Soil Survey Geographic (SSURGO) Database for Tippecanoe and Clinton Counties, Indiana, the study area contains soil areas with nationally listed hydric soils.

Table 2 Mapped Soils within the Study Area

Soil Unit	Soil Type	Percent Slope	Hydric? (Y/N)	Potential Hydric Inclusion	Landform
Clinton County					
CbA	Camden varient silt loam	0-2	No	0%	Till plains
Ce	Ceresco loam	0-2	No	Cohoctah (3%), Sloan (3%)	Flood plains
Cy	Cyclone silt loam	0-2	Yes	0%	Flats, swales, depressions, till plains
FcA	Fincastle silt loam, Tipton Till Plain	0-2	No	Cyclone (10%), Mahalassville (5%)	Till plains
FdA	Fincastle-Crosby silt loams	0-2	No	Treaty (5%)	Till plains
HeF	Hennepin silt loam	18-50	No	0%	Till plains
MsC3	Miami clay loam	6-12	No	0%	Till plains
MsD3	Miami clay loam	12-18	No	0%	Till plains, moraines
MtB	Miami-Crosby silt loams	2-6	No	Treaty (10%)	Till plains
Mx	Milford silty clay loam	0-2	Yes	0%	Potholes on lake plains
RuB	Russell silt loam	2-6	No	Cyclone, drained (3%)	Till plains
Ty	Treaty silt loam	0-2	Yes	Milford, drained (5%)	Depressions, water-lain moraines, swales
Wh	Whitaker silt loam	0-2	No	Rensselaer (5%)	Outwash plains
XeA	Xenia silt loam	0-2	No	Treaty (5%), Ragsdale (5%)	Till plains
XeB	Xenia silt loam	2-4	No	Cyclone (5%)	Till plains, moraines
Tippecanoe County					
CaA	Camden silt loam	0-2	No	0%	Outwash plains
Cl	Ceresco loam	0-2	No	Cohoctah (3%)	Flood plains

Soil Unit	Soil Type	Percent Slope	Hydric? (Y/N)	Potential Hydric Inclusion	Landform
CwB2	Crosby-Miami silt loams	2-4	No	Treaty, drained (3%)	Recessional moraines, water-lain moraines, ground moraines
DpD2	Desker-Rodman complex, kame	12-18	No	0%	Eskers
EmA	Elston loam	0-2	No	0%	Terraces
FcB	Fincastle-Crosby complex	1-3	No	Mahalasville (3%), Treaty (3%)	Till plains
HnB	Hononegah loamy sand	2-6	No	Mahalasville (3%)	Stream terraces
HoA	Hononegah fine sandy loam	0-2	No	Mahalasville (3%)	Stream terraces
KaA	Kalamazoo loam	0-2	No	0%	Outwash plains
Mb	Mahalasville silty clay loam	0-2	Yes	0%	Depressions on outwash plains
Md	Mahalasville-Treaty complex	0-2	Yes	0%	Depressions on outwash plains
Ou	Ouiatenon sandy loam	0-2	No	Cohoctah (3%)	Flood plains
Ox	Ouiatenon loamy sand	0-2	No	Cohoctah (3%)	Flood plains
RdB2	Richardville silt loam	2-6	No	0%	Till plains
RdC2	Richardville silt loam	6-12	No	0%	Till plains
RsF	Rodman gravelly loam	25-60	No	0%	Outwash plains
SmA	Sleeth loam	0-2	No	Mahalasville (3%)	Outwash plains
SwA	Starks-Fincastle complex	0-2	No	Treaty (3%), Mahalasville (3%)	Till plains
SyF	Strawn-Rodman complex	18-50	No	0%	Till plains
TcA	Thackery silt loam	0-2	No	Mahalasville (3%)	Terraces
Ua	Udorthents	0-25	No	0%	Till plains
W	Water		No		N/A

National Wetland Inventory (NWI) Information:

The NWI was reviewed for the study area. The NWI depicts several wetlands and linear water features within a 0.5 mile radius of the study area (see Figure 3 and Table 3). Within the study area, which includes the existing SR 38 corridor and adjacent land approximately 60 feet from the road centerline, three (3) wetland features were observed on the NWI Map. One (1) R2UBH is associated with the South Fork of Wildcat Creek, one (1) PEM1A occurs adjacent to the west of the South Fork of Wildcat Creek, and one (1) PEM1C occurs adjacent to the west of an unnamed tributary to Kilmore Creek.

Table 3 NWI Features within 0.5 Mile of the Study Area

Wetland/Water Feature Type	Location	Nearest to Study Area (feet)
PEM1A (18)	Various	0
PEM1C (7)	Various	0
PEM1F (2)	North of study area; west of Dayton	684
PFO1	North of study area; west of Dayton	638
PF01A (35)	Various	6
PFO1C	South of study area	571
PSS1A (4)	Various; northwest end of study area	94
PSS1C	South of study area	780
PUBF (6)	Various	168
PUBG (2)	Various	420
PUBGh (2)	South of study area; southeast end of study area	308
PUBGx (12)	Various	47
R2UBH	South Fork Wildcat Creek	0

FEMA Flood Insurance Rate Map (FIRM):

Based on the December 2, 2011 FIRM for Clinton County, Indiana, Map Number 18023C0130C, and the September 25, 2009 FIRMs for Tippecanoe County, Indiana, Map Numbers 18157C0260D and 18157C0280D the majority of the study area is located within Zone X, which is an Area of Minimal Flood Hazard (See Figure 3). The northwest portion of the study area just east of Dayton is located within Zone A, an area in which No Base Flood Elevations have been determined (See Figure 3). This floodplain area is associated with the South Fork Wildcat Creek.

HUC: #051201070306

5. Field Reconnaissance

A field reconnaissance was conducted on June 18 and 20, 2019 to determine and identify jurisdictional wetlands and WOTUS or Waters of the State within the study area, which includes the existing SR 38 corridor and adjacent land approximately 60 feet from the road centerline. The entire length of the study area was observed and photos were taken of any suspected features. All roadside ditches within the investigated area were evaluated for consideration as jurisdictional or non-jurisdictional features as well. The study area was surveyed for wetlands using methods outlined in the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Midwest Region (Midwest Regional Supplement)*. Under the delineation procedures in this manual, an area must exhibit characteristic hydrophytic vegetation, hydric soils, and wetland hydrology to be considered a wetland. If a field investigation determined that any of the three parameters are not satisfied, the area usually does not qualify as a wetland. Supporting materials used for the survey include plant identification lists and field guides, NRCS soil survey data and hydric soil list, aerial photography, USGS topographic maps and NHD, NWI map and floodplain map.

Collector for ArcGIS installed on an iPad with Bad Elf GNSS Surveyor was used to collect the location of delineated resources. Due to some receiver inaccuracies, survey contour mapping was used to assist in delineating features. Photographs were taken throughout the study area and specifically for delineated features and non-jurisdictional roadside ditches. See Figure 4 for delineated features, roadside ditches and selected photograph locations.

6. Stream and Ditch Features

Thirteen (13) streams were identified during the field investigation. These streams consist of the South Fork of Wildcat Creek and twelve (12) unnamed tributaries (UNTs). Their locations and collected data are summarized in Table 4 below. Because the 13 streams had a defined bed, bank, and connection to downstream waters, all were considered Waters of the U.S. Photographs were taken of each of these features and can be viewed in the attached photolog, and photo locations can be viewed in Figure 4, Sheets 1-25.

The largest of these stream features, South Fork of Wildcat Creek, is tributary to Wildcat Creek. It is identified as a permanent river on the USGS topographic mapping, flowing north under SR 38. It is labeled as R2UBH (riverine, lower perennial, unconsolidated bottom, permanently flooded) on the NWI map. SR 38 is carried over the South Fork of Wildcat Creek via a 450 foot bridge. The ordinary high water mark (OHWM) measured at the bridge location is approximately 42 inches in depth, and the OHWM width of the creek was measured at approximately 35 feet. Approximately 111 linear feet of this stream occur within the project study area. Based on the USGS StreamStats, the upstream drainage area for South Fork Wildcat Creek at the SR 38 Bridge is 230.7 square miles.

UNT 1 is an ephemeral tributary to South Fork Wildcat Creek. It is not depicted as a blue line on the USGS topographic mapping or labeled on the NWI map. UNT 1 flows south under SR 38 via a 48-inch by 36-inch culvert. The OHWM measured at the culvert location is approximately 12 inches in depth, and the OHWM width of the creek was measured at approximately 6 feet. Approximately 108 linear feet of this stream occurs within the project study area.

UNT 2 is an ephemeral tributary to South Fork Wildcat Creek. It is not depicted as a blue line on the USGS topographic mapping or labeled on the NWI map. UNT 2 flows north under SR 38 via a 36-inch box culvert with a 24-inch corrugated metal (CMP) pipe inside. The OHWM measured at the CMP location is approximately 12 inches in depth, and the OHWM width of the stream was measured at approximately 3.5 feet. Approximately 795 linear feet of this stream occurs within the project area.

UNT 3 is an intermittent tributary to Hog Run, which ultimately drains to Wildcat Creek. It is depicted as an intermittent stream on the USGS topographic mapping, but is not labeled on the NWI map. UNT 3 flows north under SR 38 via a 90-inch by 72-inch CMP. The OHWM measured at the CMP location is approximately 12 inches in depth, and the OHWM width of the stream was measured at approximately 3.5 feet. Approximately 118 linear feet of this stream occurs within the project study area. The upstream drainage area based on the USGS StreamStats is 0.44 square mile.

UNT 4 is an intermittent tributary to South Fork Wildcat Creek. It is depicted as an intermittent stream on the USGS topographic mapping but is not labeled on the NWI map. UNT 5 flows north under SR 38 via a 115-foot long bridge. The OHWM measured at the bridge location is approximately 18 inches in depth, and the OHWM width of the stream was measured at approximately 6 feet. Approximately 111 linear feet of this stream occurs within the project study area. The upstream drainage area based on the USGS StreamStats is 1.83 square miles.

UNT 5 is an ephemeral tributary to Kilmore Creek, which ultimately drains to Wildcat Creek. It is not depicted as a blue line on the USGS topographic mapping or labeled on the NWI map. UNT 6 flows south under SR 38 via a 30-inch CMP. The OHWM measured at the CMP location is less than 12 inches in depth, and the OHWM width of the stream was measured at approximately 1 foot. Approximately 127 linear feet of this stream occurs within the project study area.

UNT 6 is an intermittent tributary to Kilmore Creek. It is depicted as a blue line on the USGS topographic mapping, but is not labeled on the NWI map. UNT 7 flows south under SR 38 via a 48-inch CMP. The OHWM measured at the CMP location is approximately 18 inches in depth, and the OHWM width of the stream was measured at approximately 5 feet. Approximately 141 linear feet of this stream occurs within the project study area.

UNT 7 is an intermittent tributary to Kilmore Creek. It is depicted as an intermittent stream on the USGS topographic mapping, but is not labeled on the NWI map. UNT 8 flows south under SR 38 via a 24-inch CMP. The OHWM measured at the CMP location is approximately 24 inches in depth, and the OHWM width of the stream was measured at approximately 4 feet. Approximately 263 linear feet of this stream occurs within the project study area. The upstream drainage area based on the USGS StreamStats is 0.43 square mile.

UNT 8 is a perennial tributary to Kilmore Creek. It is depicted as an intermittent stream on the USGS topographic mapping, but is not labeled on the NWI map. UNT 9 flows south under SR 38 via a 96-inch by 60-inch box culvert. The OHWM measure at the culvert location is approximately 18 inches in depth, and the OHWM width of the stream was measure at approximately 4 feet. Approximately 124 linear feet of this stream occurs within the project study area. The upstream drainage area based on the USGS StreamStats is 1.23 square miles.

UNT 9 is an intermittent tributary to Kilmore Creek. It is not depicted as a blue line on the USGS topographic mapping or labeled on the NWI map. UNT 10 flows south under SR 38 via a 36-inch CMP. The OHWM measured at the CMP location is approximately 12 inches in depth, and the OHWM width of the stream was measured at approximately 6.5 feet. Approximately 150 linear feet of this stream occurs within the project study area.

UNT 10 is an ephemeral tributary to Kilmore Creek. It is not depicted as a blue line on the USGS topographic mapping or labeled on the NWI map. UNT 11 flows south under SR 38 via a 21-inch by 23-inch elliptical CMP. The OHWM measured at the CMP location is approximately 12 inches in depth, and the OHWM width of the stream was measured at approximately 2 feet. Approximately 96 linear feet of this stream occurs within the project study area.

UNT 11 is an ephemeral tributary to Kilmore Creek. It is not depicted as a blue line on the USGS topographic mapping or labeled on the NWI map. UNT 12 flows south under SR 38 via a 15-inch reinforced concrete pipe (RCP). The OHWM measured at the RCP location is approximately 12 inches in depth, and the OHWM width of the stream was measured at approximately 1.5 feet. Approximately 140 linear feet of this stream occurs within the project study area.

UNT 12 is an intermittent tributary to Kilmore Creek. It is depicted as an intermittent stream on the USGS topographic mapping, but is not labeled on the NWI map. UNT 13 flows south under SR 38 via a 15-inch HDPE-plastic field drain. The OHWM measured at the drain location is approximately 12 inches in depth, and the OHWM width of the stream was measured at approximately 5 feet. Approximately 40 linear feet of this stream occurs within the project study area. The upstream drainage area based on the USGS StreamStats is 0.08 square mile.

Seventeen (17) roadside ditches (RSDs) were observed throughout the study area. Flow was not observed in any of the ditches during the site visit. The ditches lacked an OHWM, and did not have a defined bed and bank area; therefore, they would likely be considered non-jurisdictional by the USACE. All of the observed RSDs can be viewed in the attached photolog (Photos 42-74) and photo locations.

The NHD depicted several features that were not observed in the field. These features were likely previously disturbed by adjacent developments and agriculture practices.

Table 4 Stream Summary Table

Stream Name	Photos	Lat/Long	OHWM Width (ft)	OHWM Depth (in)	USGS Blue Line?	Ripples? Pools?	Substrate	Quality	Likely WOTUS?
South Fork of Wildcat Creek	8-10	40.3753 -86.7522	35	42	Perennial	Ripples	Sand, gravel	Average	Yes
UNT 1	19-24	40.3683 -86.7330	6	12	No	No	Gravel, vegetation	Poor	Yes
UNT 2	29-32	40.3634 -86.7219	3.5	12	No	No	Vegetation	Poor	Yes
UNT 3	41-42	40.3502 -86.6828	2.5	12	Intermittent	No	Silt	Poor	Yes
UNT 4	49-51	40.3446 -86.6428	6	18	Intermittent	Pools	Sand, gravel	Average	Yes
UNT 5	58-65	40.3445	1	<12	No	No	Sand, silt	Poor	Yes

		-86.6113							
UNT 6	66-67	40.3444 -86.6015	5	18	No	No	Sand, gravel	Poor	Yes
UNT 7	68-70	40.3443 -86.5989	4	24	Intermittent	No	Silt, sand	Average	Yes
UNT 8	71-73	40.3444 -86.5984	4	18	Intermittent	No	Sand, gravel	Average	Yes
UNT 9	74-77	40.3444 -86.5842	6.5	12	No	No	Sand, silt	Poor	Yes
UNT 10	78-85	40.3443 -86.5809	2	12	No	Pools	Sand, silt	Poor	Yes
UNT 11	87-89	40.3442 -86.5769	1.5	12	No	No	Silt, gravel	Poor	Yes
UNT 12	90-97	40.3442 -86.5719	5	12	Intermittent	No	Gravel, vegetation	Poor	Yes

7. Wetlands Features Discussion

Three potential wetland sites, A, B, and C, were investigated during the field visit (Table 5 and Figure 4, Sheets 2, 12, and 23). Data Point A1 was observed as a vegetated terrace adjacent to the South Fork of Wildcat Creek (see Data Form A1 and Photo 37). The NWI depicts this site as PEM1A (palustrine, persistent emergent, temporarily flooded). This area seems to have been previously disturbed during the construction of the existing bridge due to the presence of a restrictive layer consisting of riprap material approximately 14 inches below ground surface. Due to the lack of hydrophytic vegetation, hydric soils and wetland hydrology, this site was determined not to be a wetland.

Data Point B1 was observed as a vegetated drainage swale surrounded by agricultural fields and mown lawns (see Data Form B1 and Photo 38). The data point was taken on the banks of the swale. The vegetation consisted mostly of broadleaf cattails (*Typha latifolia*), smooth brome (*Bromis inermis*), and longleaf milkweed (*Asclepias longifolia*). The broadleaf cattails (*Typha latifolia*) is likely sustained by the adjacent swale. While digging the soil pit, the shovel probe reached termination at approximately 12 inches below ground surface due to a restrictive layer of stone and gravel. The area appeared to be well drained, and no hydric soil indicators were observed. Due to a lack of wetland hydrology, hydrophytic vegetation and hydric soils, this site was determined not to be a wetland.

Data Point C1 represents an area along the south of SR 38 and west of North County Road 400 West where the presence of standing water and cattails was observed (see Data Form C1 and Photos 39-40). It is believed that the construction of an access road by the property owner restricted the flow of water into the ditch. The vegetation in the area was comprised entirely of common cattail (*Typha latifolia*), which is a hydrophytic species. Hydric soil was present due to the indicator of redox dark surface (F6). Standing water was observed on the site at a depth of approximately two inches. Based on the presence of wetland hydrology, hydrophytic vegetation, and hydric soils, Data Point C1 is considered a wetland likely jurisdictional by the USACE (Wetland C). Wetland C is approximately 0.007 acres in size and exhibits a surface connection to UNT 11, an ephemeral tributary to Kilmore Creek. The quality of this wetland was determined based on its monoculture plant community, its apparently artificial nature, and its small capacity for flood storage. Table 6 summarizes the characteristics of this wetland.

Data Point C2 was observed as a mown lawn adjacent to the south of Wetland C (see Data Form C2 and Photo 41). Vegetation in this area consisted entirely of mown lawn and a sugar

maple tree (*Acer saccharum*). The site was observed to have a 2-5 percent slope with well-drained soils. No wetland hydrology was observed. Due to the lack of wetland hydrology, hydrophytic vegetation and hydric soils, this site was determined not to be a wetland.

Table 5 Data Point Summary Table

Data Point	Vegetation	Soils	Hydrology	Wetland
A1	No	No	No	No
B1	No	No	No	No
C1	Yes	Yes	Yes	Yes
C2	No	No	No	No

Table 6 Wetland Summary Table

Wetland ID	Photos	Lat/Long	Type	Area (acres)	Quality	Likely WOTUS?
Wetland C	39-40	40.344311 -86.580976	PEM1A	0.007	Poor	Yes

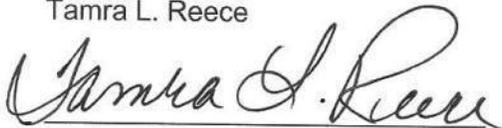
8. Conclusions

Jurisdictional features that were identified within the study area include thirteen streams (see Table 4) and one wetland (Wetland C). These waterways are likely Waters of the U.S. Every effort should be taken to avoid and minimize impacts to the waterways and wetland. If impacts are necessary, then mitigation may be required. The INDOT Environmental Services Division should be contacted immediately if impacts will occur. The final determination of jurisdictional waters is ultimately made by the USACE. This report is our best judgement based on the guidelines set forth by the USACE.

9. Acknowledgement

This waters determination has been prepared based on the best available information, interpreted in the light of the investigator's training, experience and professional judgement in conformance with the 1987 *Corps of Engineers Wetlands Delineation Manual*, the appropriate regional supplement, the USACE *Jurisdictional Determination Form Instructional Guidebook*, and other appropriate agency guidelines.

Tamra L. Reece



Environmental Specialist
 Hanson Professional Services Inc.

10. Supporting Documentation

Maps:

Figure 1 – Project Location
Figure 2A, 2B and 2C – USGS Topographic Maps
Figure 3 – NWI/NHD/FIRM/NRCS Soil Survey Map (12 sheets)
Figure 4 – Delineated Features and Photo Orientation Map (25 sheets)
Photos 1-74
Wetland Determination Data Forms

11. References

- Cowardin, L.M., V. Carter, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services. FWS/OBS-79/31. Washington, D.C. 20240.
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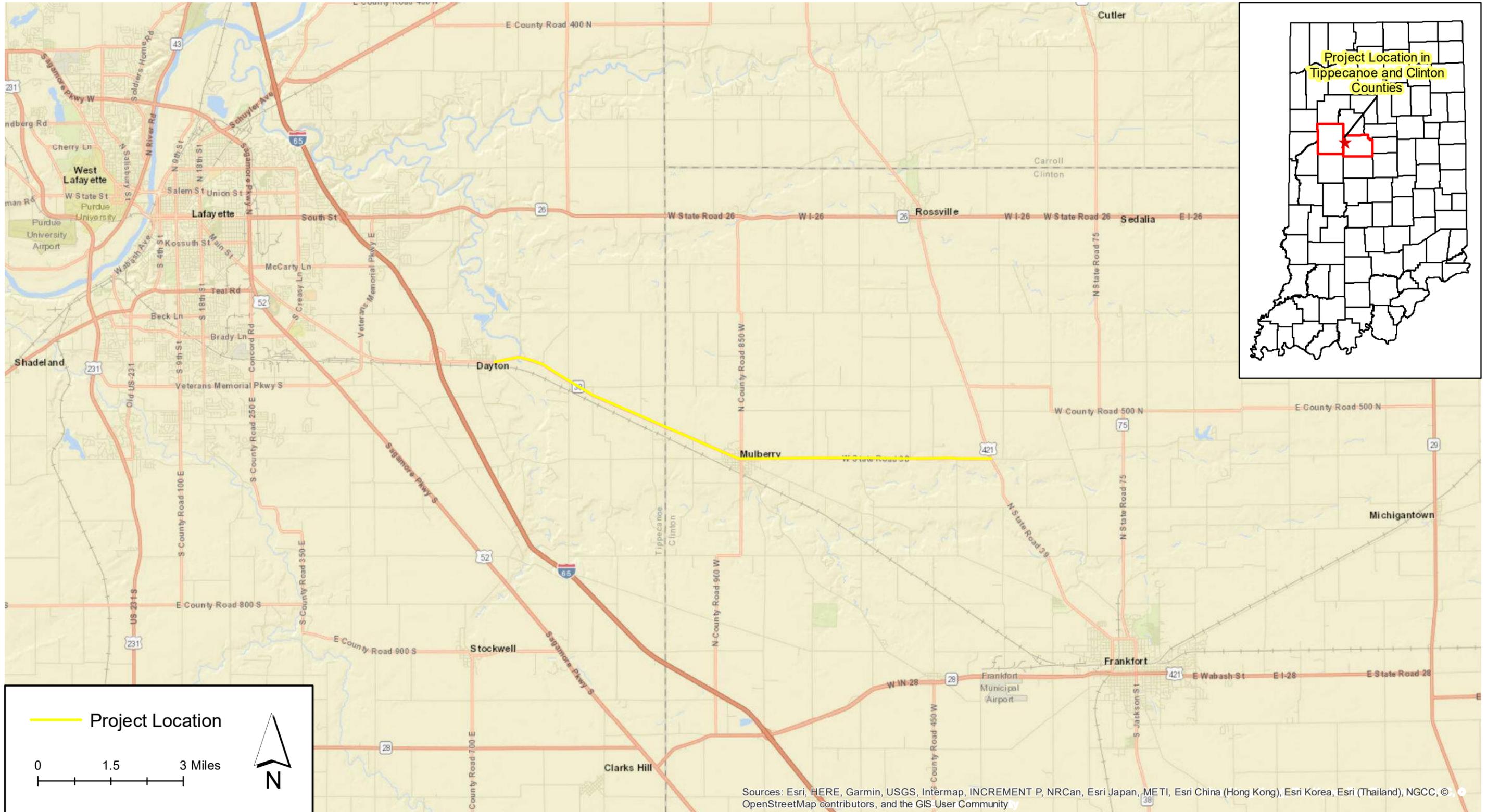
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Figure 1 Project Location



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

Figure 2A USGS Topographic Map

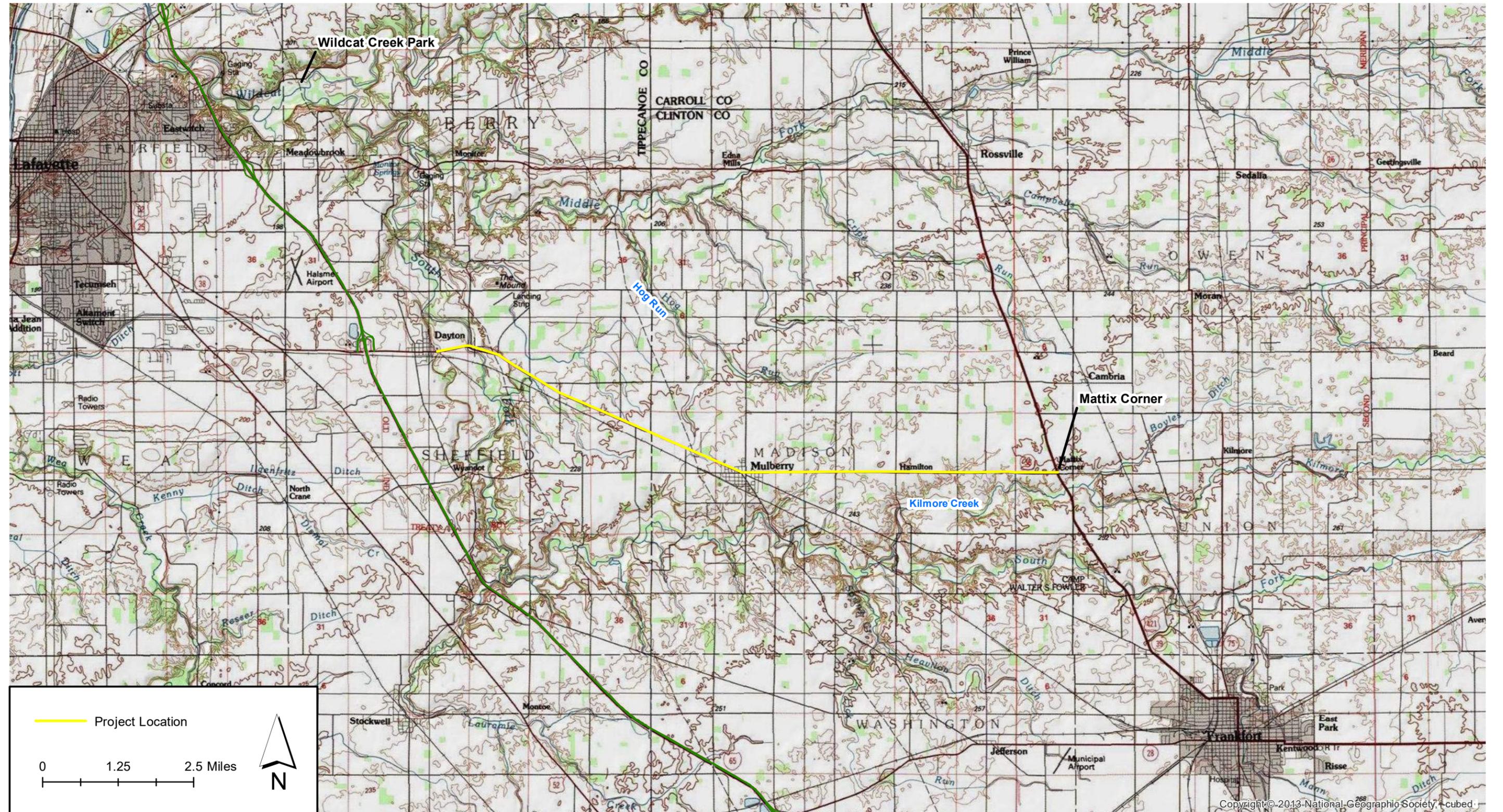


Figure 2B USGS Topographic Map

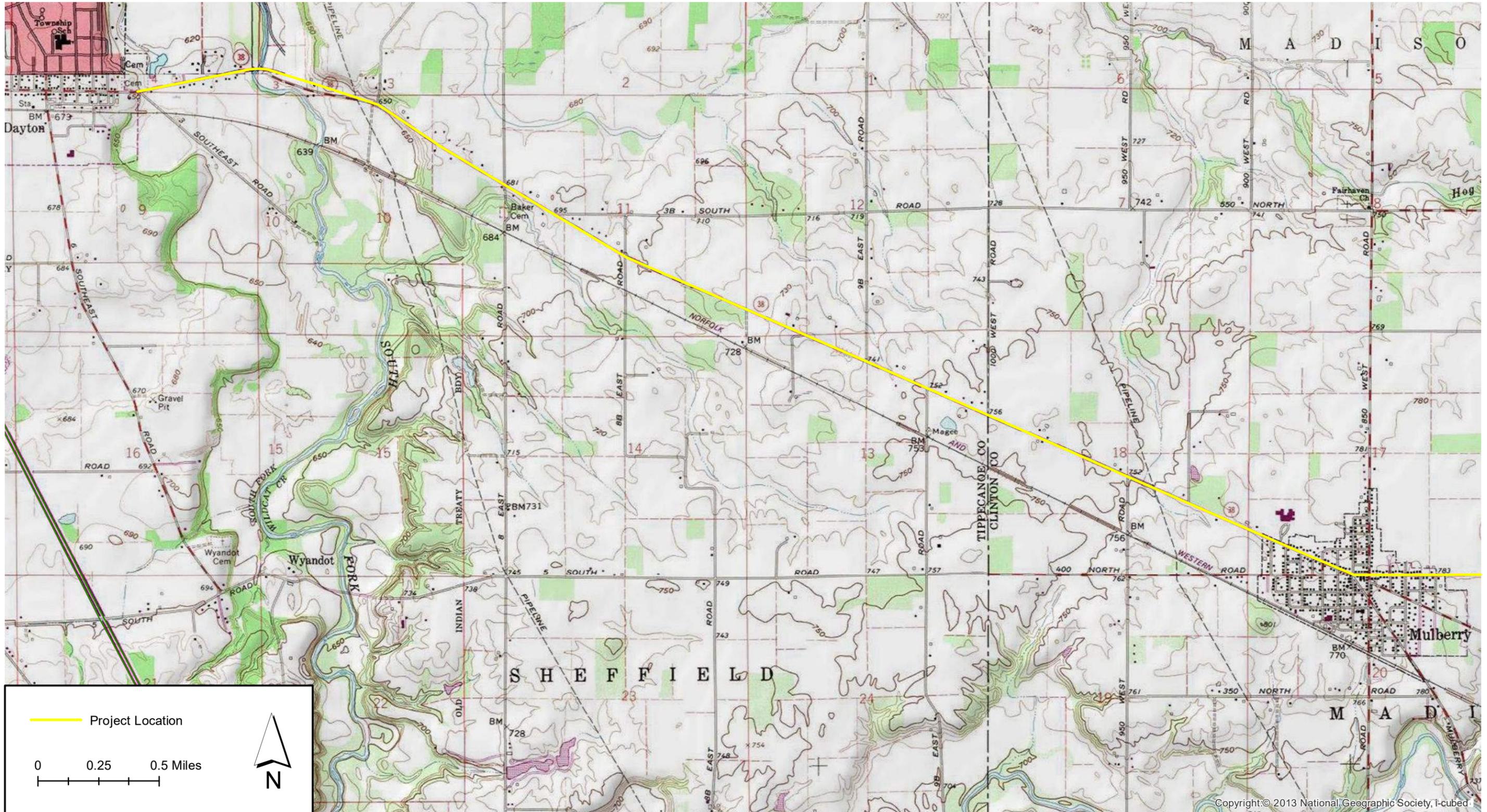


Figure 2C USGS Topographic Map

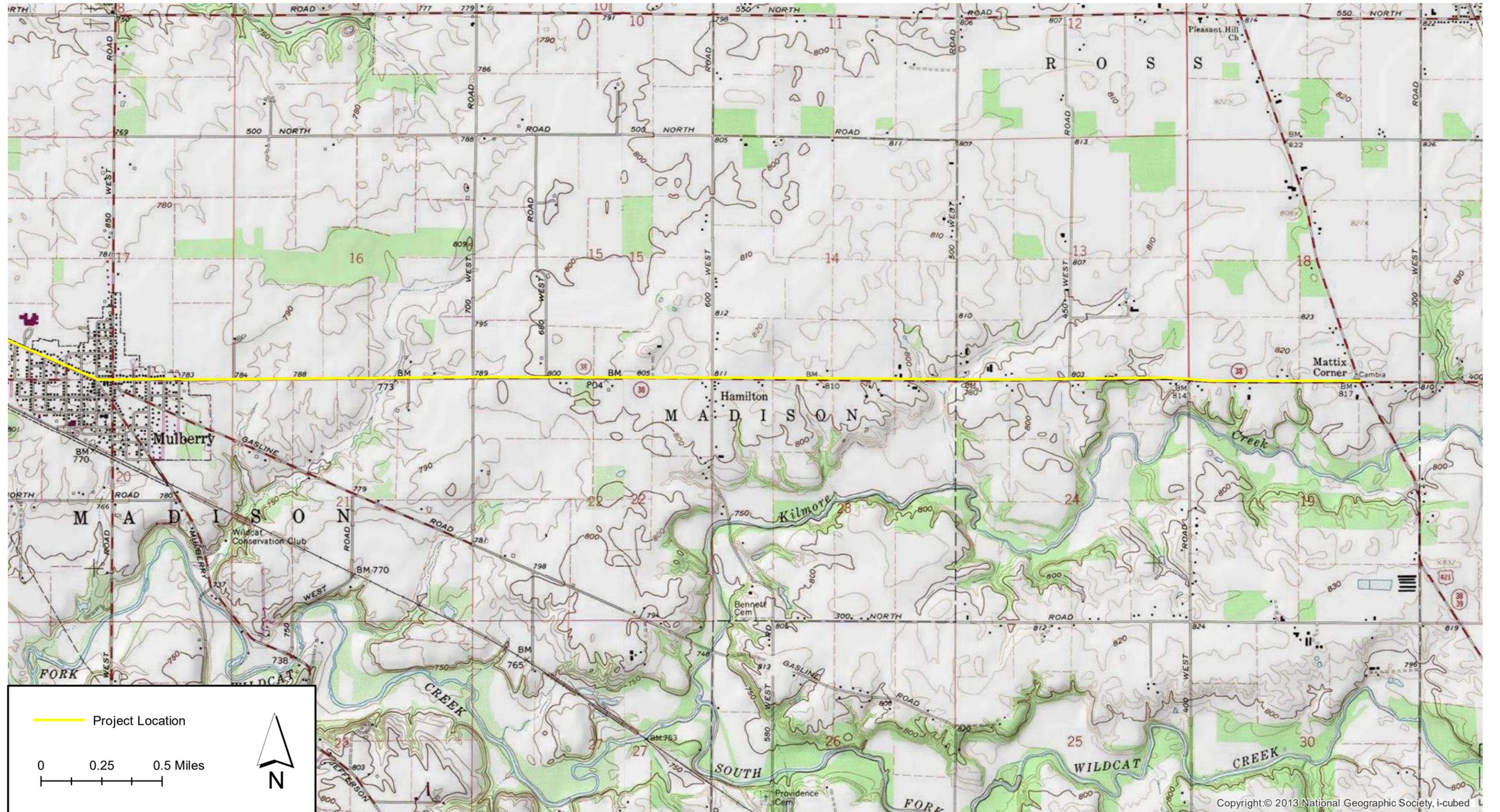


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 1

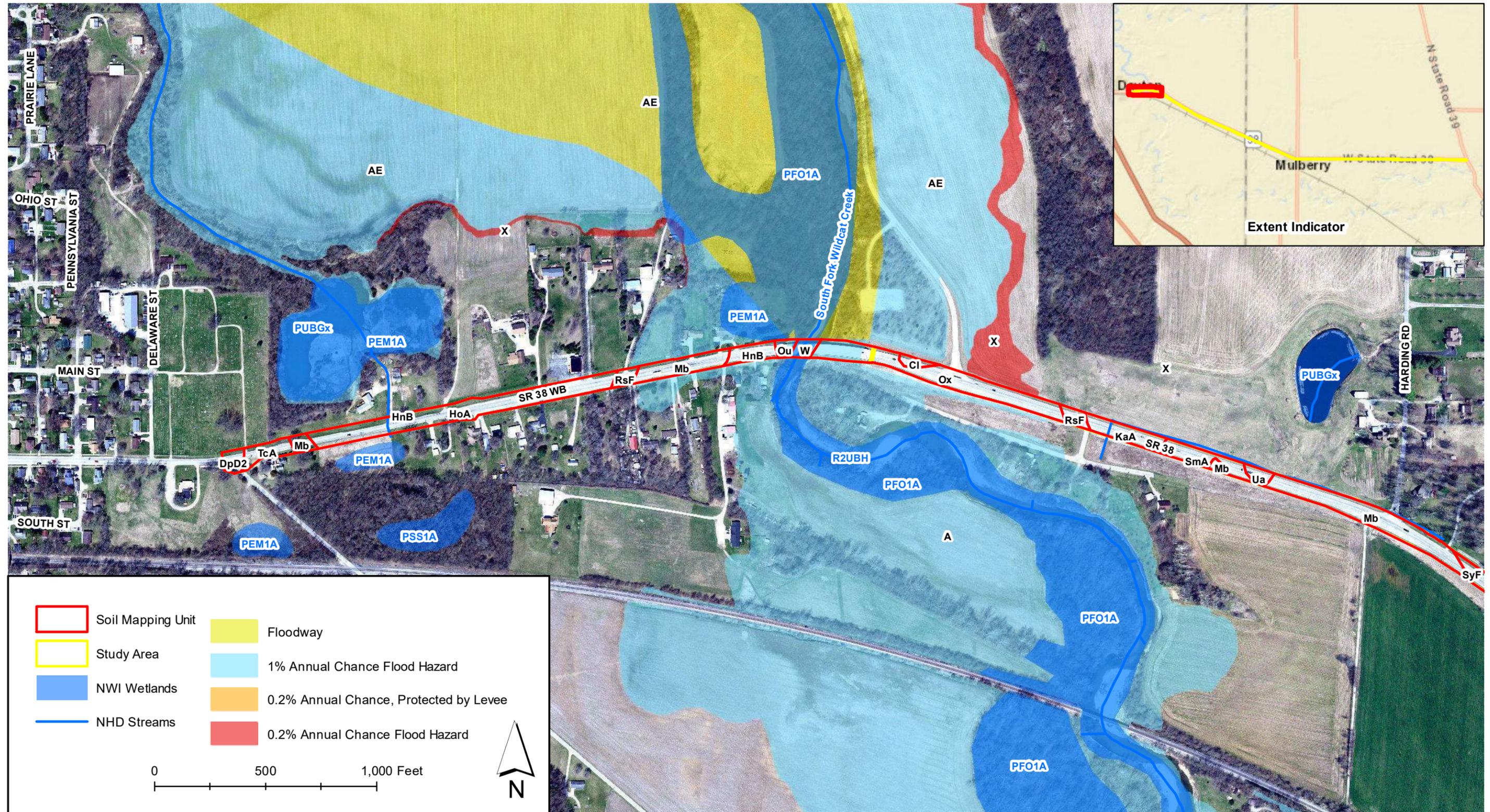


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 3

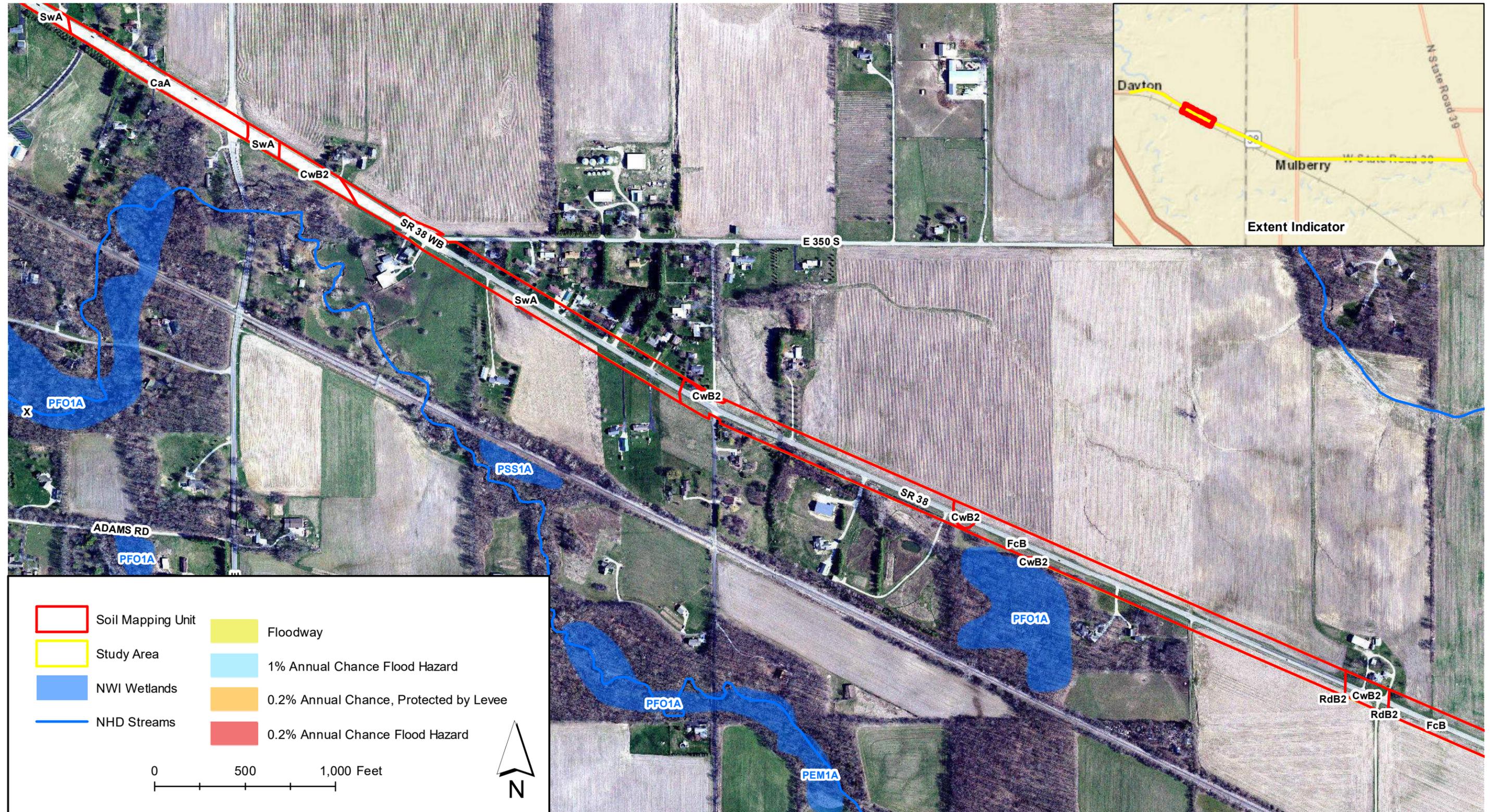


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 4

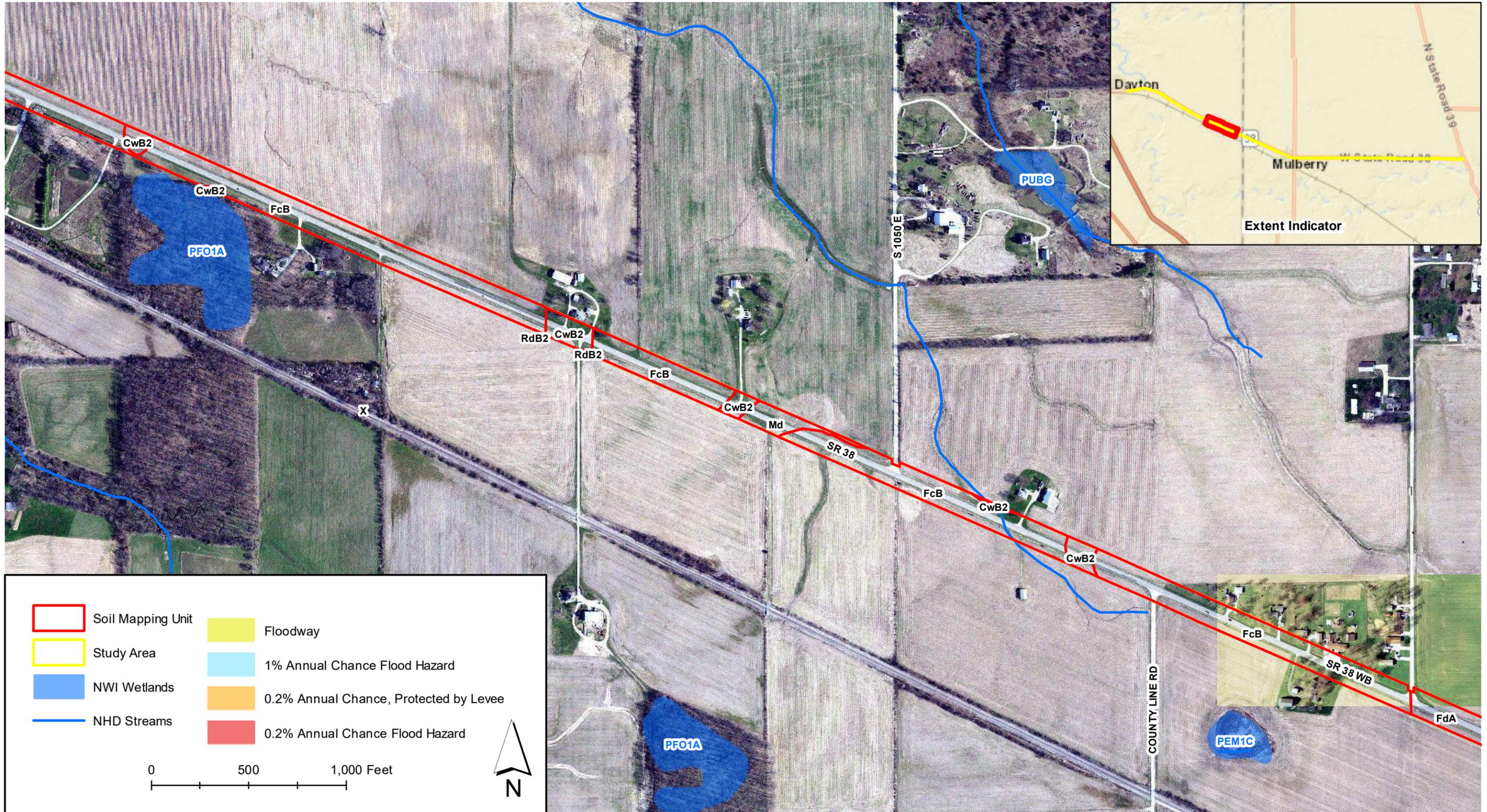


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 5



Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 6

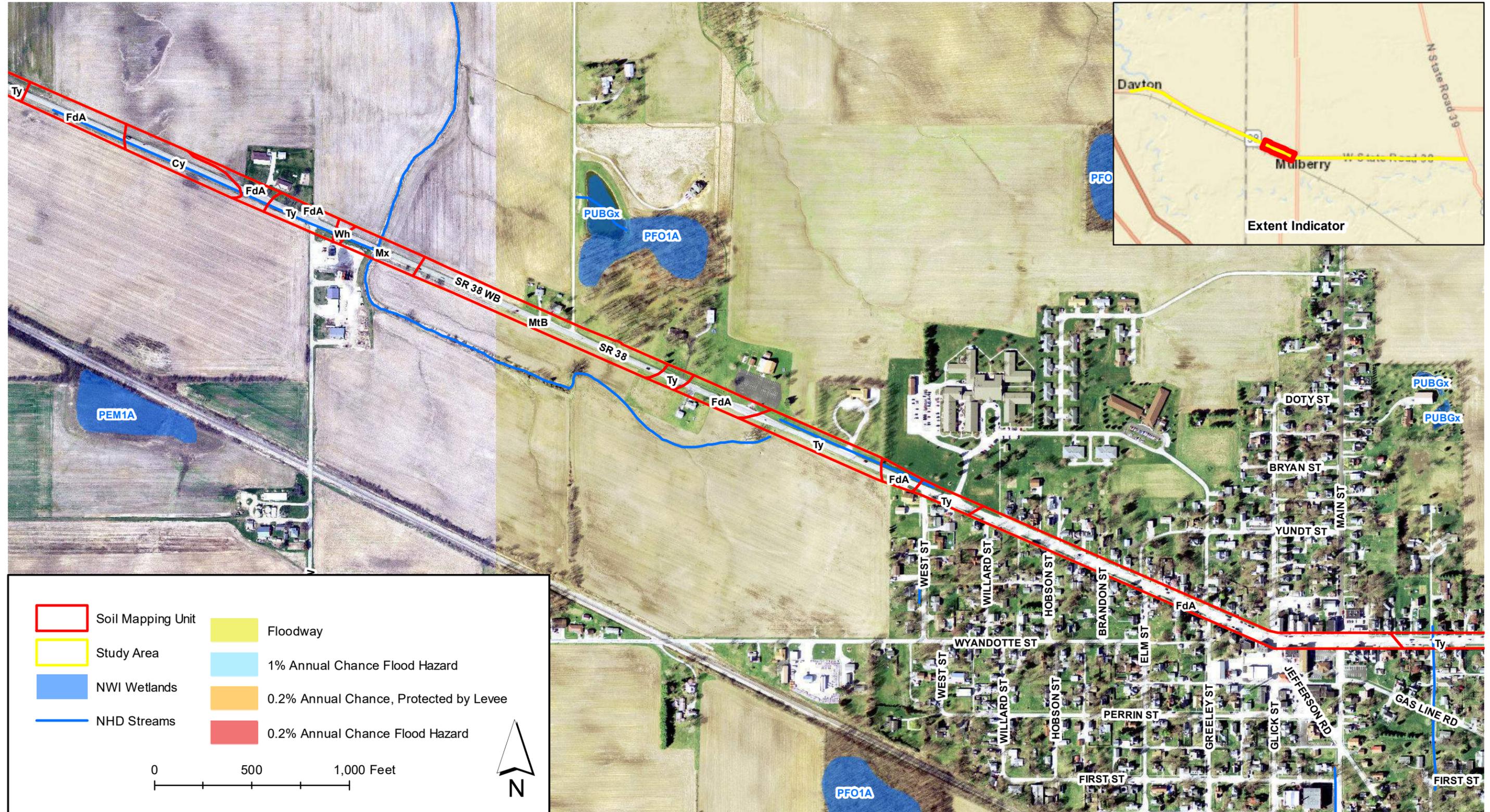


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 7

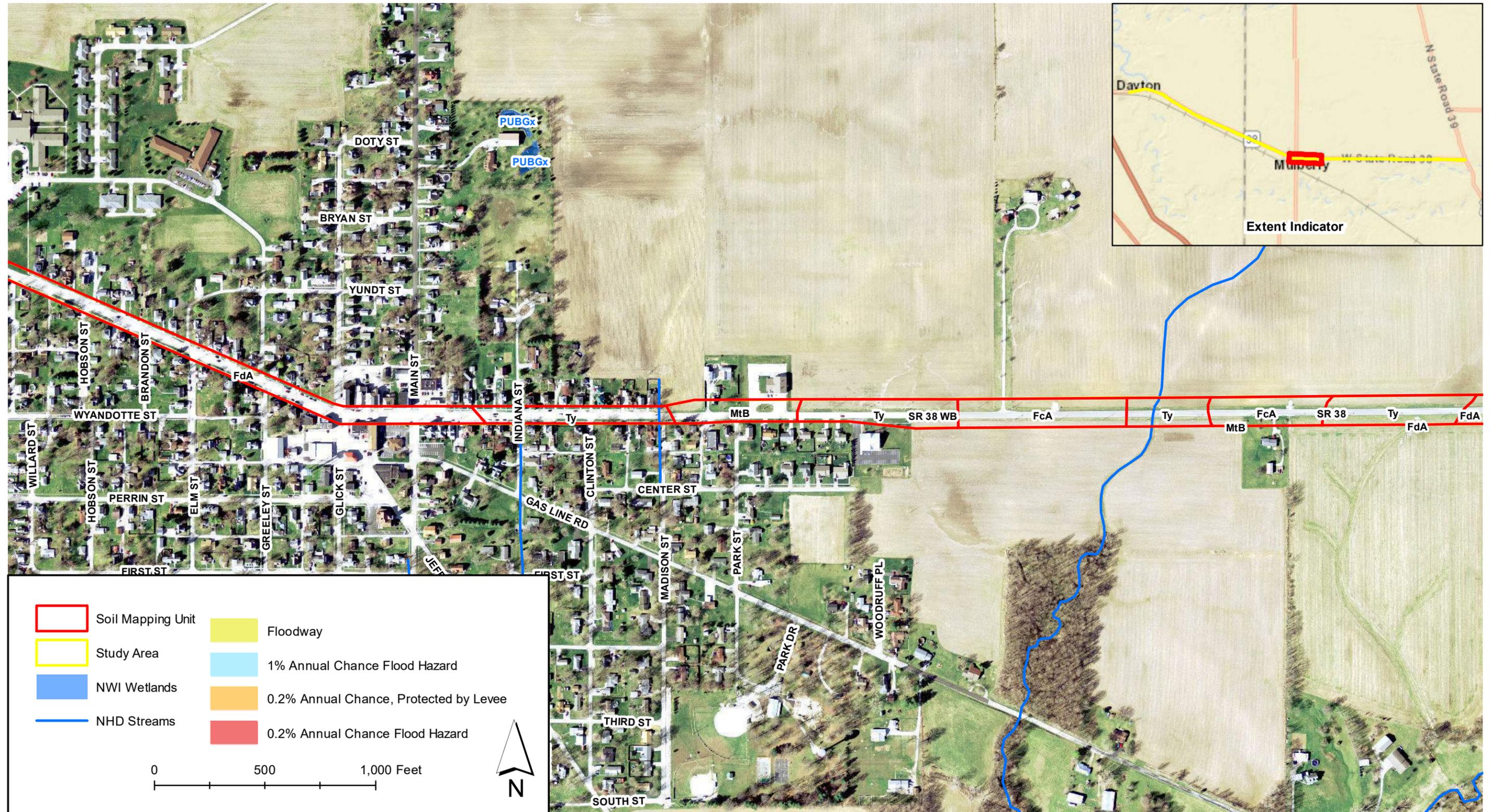


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 8

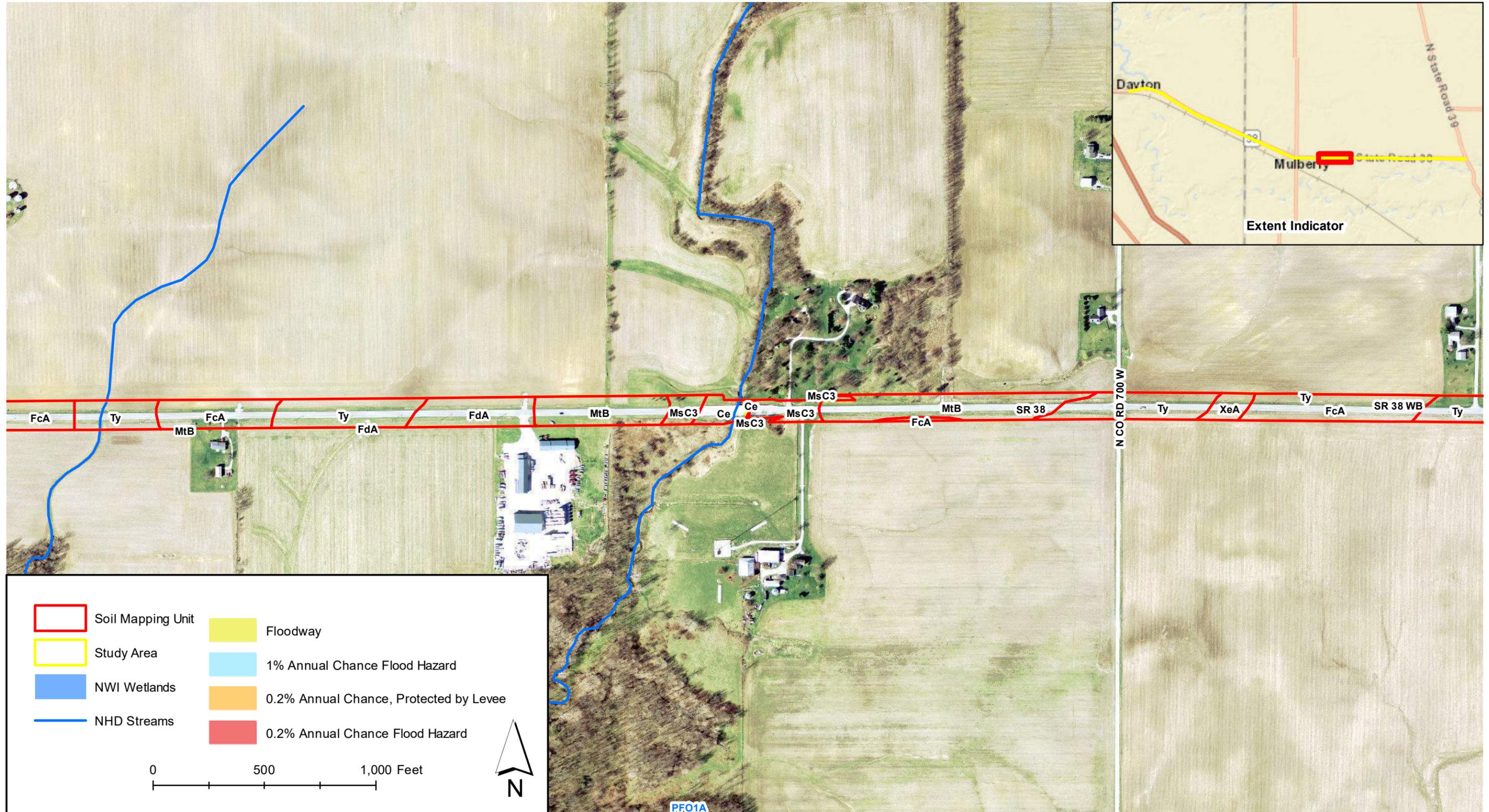


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 9

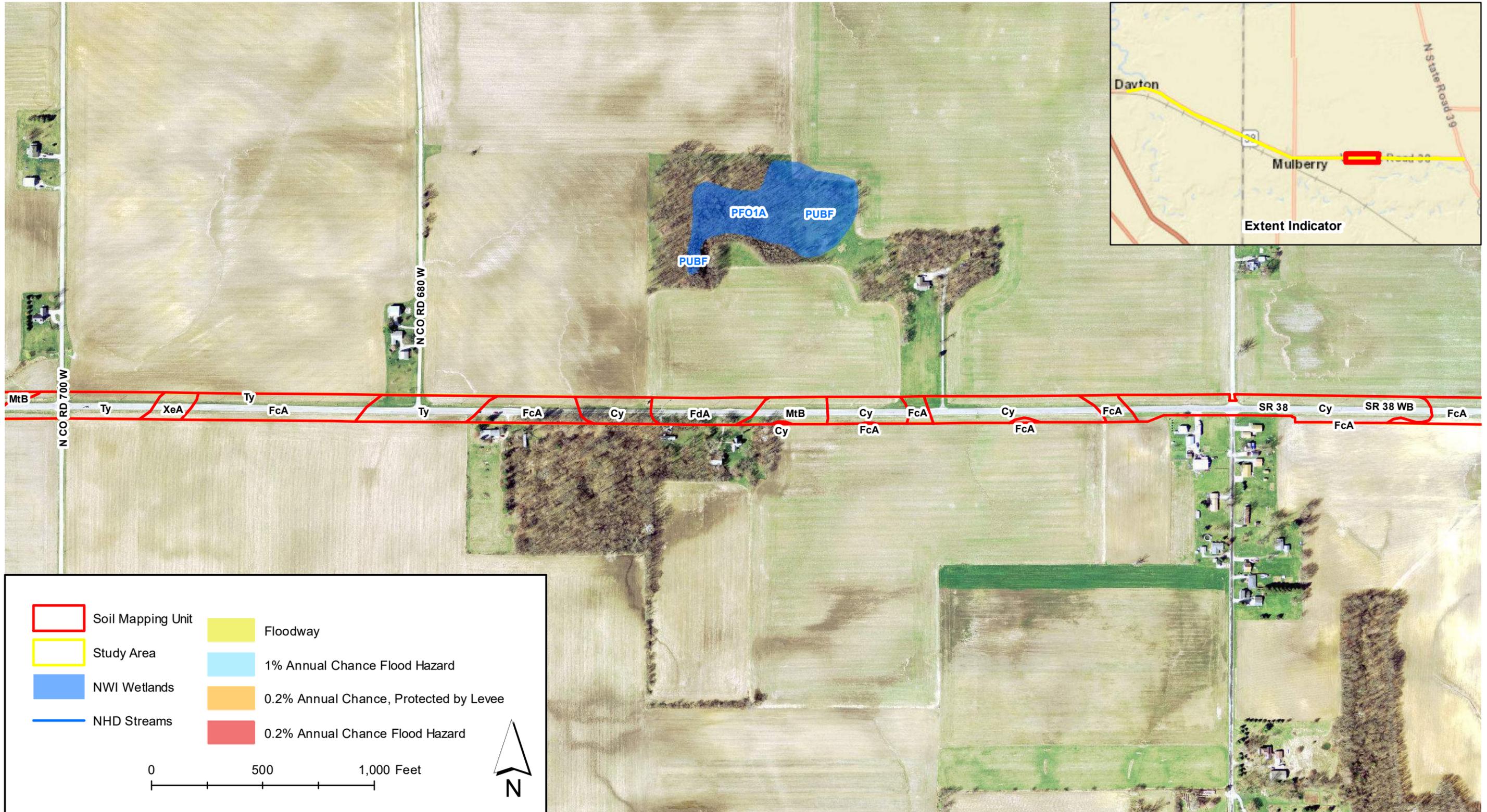


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 10

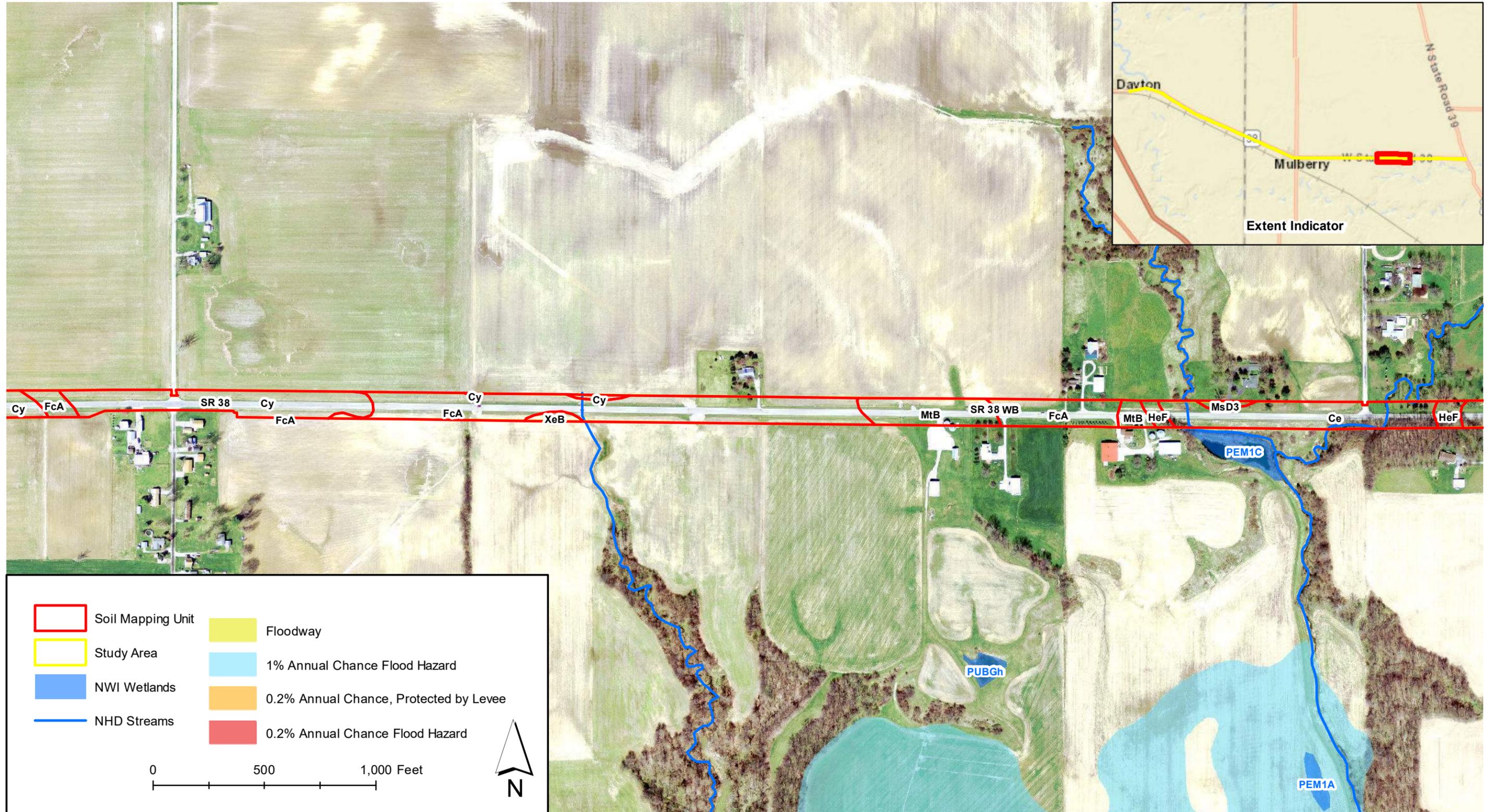


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 11

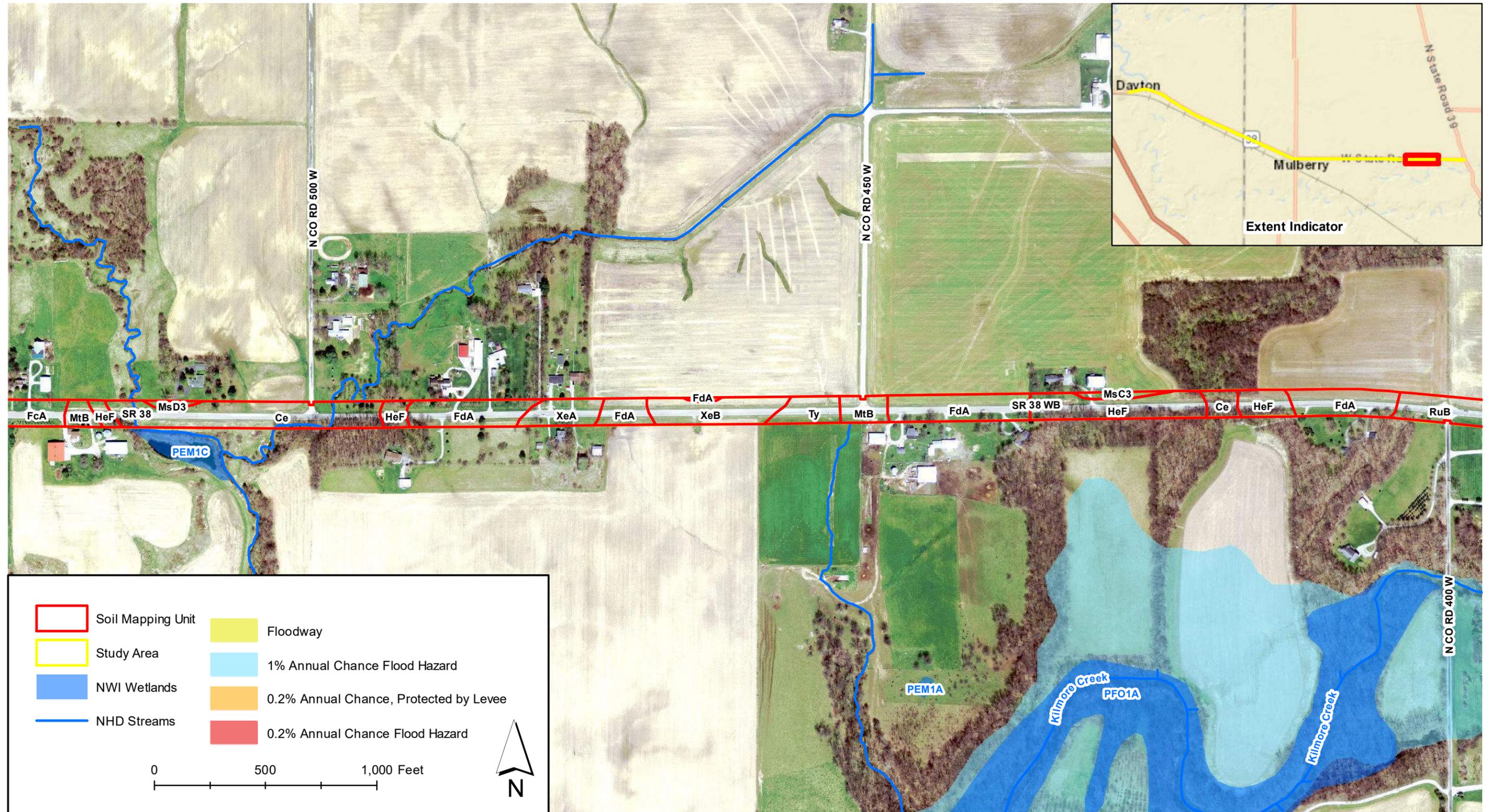


Figure 3 NWI/FIRM/NHD/NRCS Soil Survey Map - Sheet 12

